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NR. 5. P. JESPERSEN: STATISTICAL SURVEY OF THE HALIBUT FISHERY IN THE WATERS ROUND THE FAROES, ICELAND AND GREENLAND

KØBENHAVN
C. A. REITZELS FORLAG
BIANCO LUNOS BOGTRYKKERI A/S
1938

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INTRODUCTION

On the basis of the available statistics the present report gives a review of the Halibut fishery in the waters round the Faroes, Iceland and Greenland, in the years from which we have such information.

For this purpose the annual "Bulletin Statistique des Pêches Maritimes", published by the Conseil permanent international pour l'exploration de la mer, has been used up to the

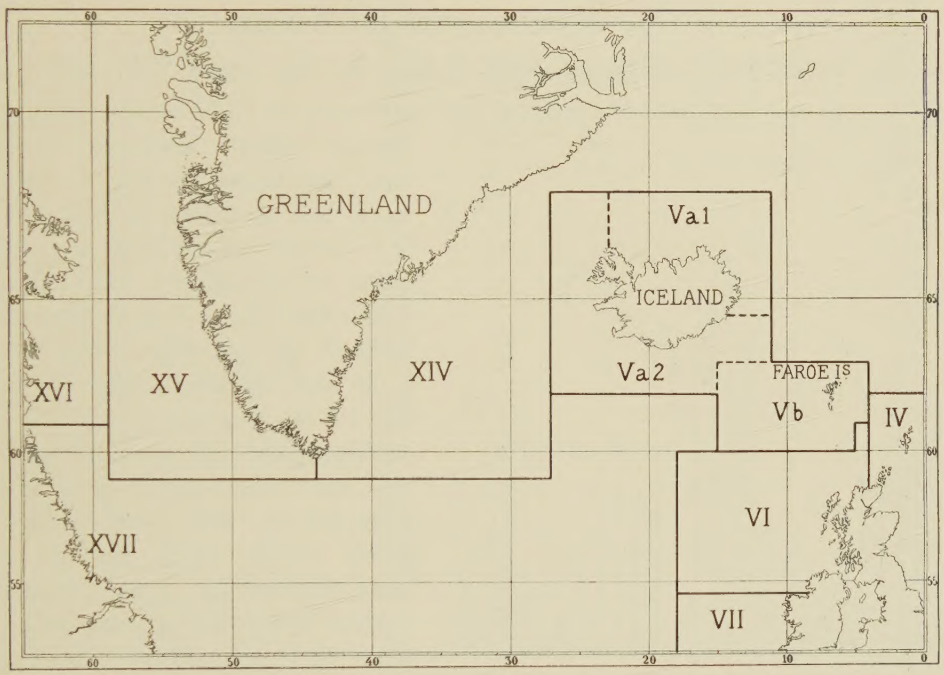

Fig. 1. Chart of statistical areas of the International Council (after "Bulletin Statistique"). The waters round the Faroes (V b), Icelandic waters (V a 1 and V a 2), and the waters round Greenland (XIV and XV).

latest volume published, that for the year 1935. Other sources have been the more detailed information given by the English and Scottish fisheries statistics, namely, "Fisheries — England and Wales. Sea Fisheries Statistical Tables", and "Fisheries — Scotland. Sea Fisheries Statistical Tables", up to the year 1936. Further, through the kindness of the Fishery Board for Scotland I have obtained a lot of detailed information concerning both trawl and line fishery for Halibut in the different waters; this has been a valuable contribution to this investigation and merits here an expression of my best thanks.

So far as the Faroes and Iceland are concerned, the statistical material used dates from and includes the year 1906, but the actual material used depends to some extent on whether more or less complete data have been available for a shorter or longer period. In the case of Greenland fairly complete statistics are only available from the year 1928 onwards.

The Halibut fishery in the three regions mentioned amounts to a very important part of the total Halibut fishery in the North Atlantic. According to the "Bulletin Statistique", for example, it amounted to between 49.7 % and 60.9 % of the total yield in the years 1932—35. In these years the yield at the Faroes amounted to between 7.8 and 11.5 %, at Iceland between 18.8 and 22.1 % and at Greenland between 22.9 and 30.3 % of the total. The total value of the Halibut fishery in the North Atlantic, according to the "Bulletin Statistique", varied between ca. 14,600,000 shillings and ca. 15,800,000 shillings for the years 1932—35; consequently, the value of the fisheries at the Faroes, Iceland and Greenland in those years may presumably be estimated at about half this amount, ca. 7,500,000 shillings.

I. The Waters round the Faroes.

1. Total Yield of the Halibut fishery in the years 1906—35.

According to the "Bulletin Statistique" the total annual yield of the Halibut fishery in Faroese Waters amounted to the quantities represented in Fig. 2. The yield for each year is shown in Table 1.

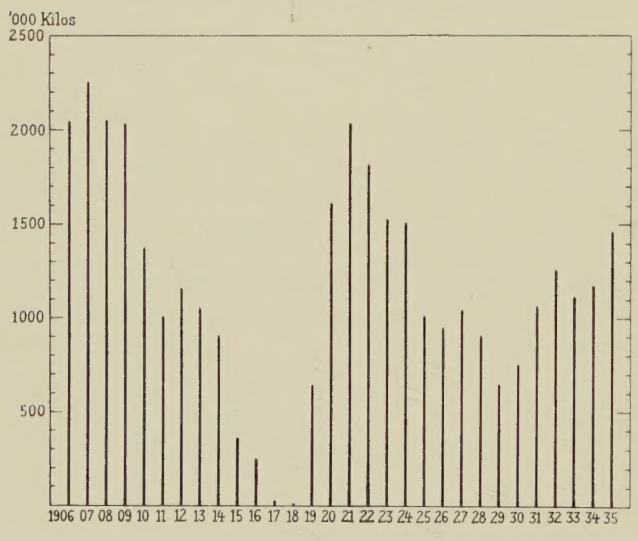

Fig. 2. Total Yield (in '000 kgs.) of the Halibut fishery in the Waters round the Faroes in the years 1906—35.

In the years before the world war the yield was greatest in 1907, namely about 2,252,000 kgs., but thereafter it fell evenly until in the war years when the quantities were quite minimal. After the war, 1919—21, a very marked increase occurred, the maximum in 1921 reaching quite 2,000,000 kgs. This marked the highest point reached after the war, then the quantities decreased fairly evenly until 1929, in which year only 656,000 kgs. were fished in Faroese waters. This was a minimum for the years since 1919; after 1929 came a slightly rising tendency in the quantities taken, culminating in the last year of the available statistics, namely 1935, with a total yield of 1,472,000 kgs.; calculating the average for the last three 5-year periods we have the following result:

1921—1925	1,587,000 kgs.
1926—1930	869,000 -
1931—1935	1,221,000 -

which shows a minimum during the middle period, 1926—30.

2. Share of the different countries in the Faroese Halibut fishery in the years 1906—1935.

Various countries take part or have taken part in the Halibut fishery round the Faroes, but as shown by Table 1 it is far and away England and Scotland, which land the largest quantities of Halibut from this region.

Table 1. Quantities (in '000 kgs.) of Halibut taken in Faroese Waters by the different countries, as also the total quantities, for the years 1906—1935.

	Belgium	Denmark	England	Faroe Islands	Germany	Holland	Norway	Scotland	Total
1906	1	—	1,971	—	—	5	—	61	2,038
1907	1	—	2,169	—	—	9	—	73	2,252
1908	—	—	1,810	—	—	8	—	234	2,052
1909	1	—	1,620	—	—	13	—	411	2,045
1910	—	—	1,037	—	—	2	—	346	1,385
1911	3	—	758	9	—	1	—	232	1,003
1912	—	—	790	19	—	2	—	354	1,165
1913	—	—	821	11	—	5	—	222	1,059
1914	—	—	570	4	—	—	—	329	903
1915	—	—	127	28	—	—	—	203	358
1916	—	—	—	14	—	—	—	240	254
1917	—	—	—	13	—	—	—	15	28
1918	—	—	—	—	—	—	—	2	2
1919	—	—	556	—	—	—	—	93	649
1920	—	—	1,045	5	—	—	—	560	1,610
1921	—	—	1,106	—	—	—	—	941	2,047
1922	—	—	1,021	91	—	1	—	710	1,823
1923	—	—	844	61	1	—	—	631	1,537
1924	—	—	939	25	—	—	—	548	1,512
1925	—	—	638	18	—	—	—	358	1,014
1926	—	—	441	3	—	1	—	521	966
1927	—	—	444	41	—	—	—	568	1,053
1928	—	—	416	78	—	—	—	416	910
1929	—	—	391	50	—	—	—	215	656
1930	—	—	412	28	—	—	—	321	761
1931	—	—	604	49	—	—	—	423	1,076
1932	—	—	649	102	—	2	—	512	1,265
1933	—	1	664	40	—	—	—	414	1,119
1934	—	1	611	54	—	—	43	466	1,175
1935	—	1	751	78	—	—	50	592	1,472

In the years before the war of 1914—18 the English catch in these waters far exceeded the Scottish, and in most of the years after the war the English catch is the greater, but the difference is considerably less than before the war. For a couple of years, 1926 and 1927, the Scottish quantities are even larger than the English and in 1928 we find the same amount for both countries. Fig. 3 gives the curves representing the English and Scottish fisheries respectively, as also the total catch, for the years 1906—35. The fluctuations from year to year can readily be followed in these curves.

As shown by the course of the curves, it is quite evident, that the great fall in the total catch in the pre-war years 1907—13 was mostly due to a corresponding decrease in the yield of the English fishery. It will be seen further, that the curves for the English and Scottish fisheries

Fig. 3. Total Catch of Halibut (in kgs.) in Faroese Waters during the years 1906—35, together with the English and Scottish landings.

in the post-war years follow in the main the same course, and for both countries there seems to be a tendency, though feeble, towards a rise in the yield in the years since 1930.

3. England.

In the official English statistics we find more specific information regarding the yield of the Halibut fishery in the waters round the Faroes for the years 1906—14 and from 1919—36; during the war years 1915—18 we have no data regarding the fishery at the Faroes. The yearly landings are given for respectively trawlers and liners, as shown in Table 2.

The quantities shown in the Table, given in cwts., are represented again in Fig. 4 for respectively the trawl fishery and the line fishery.

As will be seen from Fig. 4, the yield for the trawl fishery shows a decreasing tendency from 1906 to 1914, namely, from ca. 11,000 cwts. to ca. 5,000 cwts. On the other hand, in the

Table 2. The English Halibut fishery at the Faroes 1906—14 and 1919—36.

	Trawlers	Liners	Total
	Cwts.	Cwts.	Cwts.
1906	11,363	27,430	38,793
1907	9,606	33,100	42,706
1908	4,957	30,675	35,632
1909	7,038	24,854	31,892
1910	7,741	12,672	20,413
1911	7,166	7,746	14,912
1912	5,938	9,609	15,547
1913	7,250	8,906	16,156
1914	5,411	5,800	11,211
1919	3,952	6,998	10,950
1920	3,576	17,001	20,577
1921	1,855	19,921	21,776
1922	7,406	12,698	20,104
1923	8,694	7,925	16,619
1924	12,228	6,262	18,490
1925	8,492	4,071	12,563
1926	4,915	3,766	8,681
1927	5,691	3,044	8,735
1928	6,914	1,273	8,189
1929	6,921	782	7,703
1930	6,713	1,400	8,113
1931	11,136	747	11,883
1932	11,824	943	12,767
1933	12,557	515	13,072
1934	11,971	48	12,019
1935	14,496	278	14,774
1936	11,408	385	11,793

Fig. 4. The Catch in '000 cwts. of English trawlers and liners in Faroese Waters for the years 1906—14 and 1919—36.

earlier post-war years there is a rise in the yield with a culmination in the year 1924 (ca. 12,000 cwts.) and in the years 1925 and 1926 there is a marked decline to ca. 5,000 cwts., but then we notice again a fairly even increase so far as the trawl fishery is concerned until 1935, when the yield lies about 14,500 cwts. On the whole, however, apart from the first post-war years, the fluctuations in the yield of the trawl fishery are not remarkably great, the quantities for the separate years lying between 5,000 and 15,000 cwts.

The picture for the line fishery is quite different. In the first years, from 1906—1909, its yield varies between ca. 25,000 and 33,000 cwts.; then comes a sharp fall in 1910 to ca. 12,600 cwts. and in the years 1911—14 the yield lies as low as between 6,000 and 10,000 cwts. In the early post-war years 1919 to 1921 the yield rises from ca. 7,000 cwts. to about 20,000 cwts., which represents a distinct maximum yield for the whole post-war period. In the years 1922 and 1923 the yield declines to respectively ca. 13,000 cwts. and 8,000 cwts., and it falls evenly till 1928—30, when the yearly quantity has come down to about 1,000 cwts.; in the following years also 1931—36 the annual yield is everywhere below 1,000 cwts. Whilst the average yield for the years 1920—22 was about 16,500 cwts., in the years since 1930 it has only amounted to about 490 cwts.

It is thus quite evident, that the yield of the English line fishery at the Faroes has suffered an enormous decrease from the first post-war years up to the present time.

A. Trawl fishery at the Faroes (England). In the English fisheries statistics we find various representations of the data and we may use these for a comparison between the different years for which information is available. In the case of the trawl fishery we have information on the following points:

1. Average catch per day's absence from port, given in tenths of a cwt.;
2. Average catch per 100 hours fishing, in cwts.

The first method of calculation has been used for the material from all the years considered, 1906—14 and 1919—36, but the second only for the years 1922—36.

Table 3 gives the average catches, calculated according to the two methods.

Table 3. England — Steam trawlers.

A. Average catch per day's absence from port (in $^1/_{10}$ths. of cwt.).
B. Average catch per 100 hours fishing (in cwts.).

Year	1906	1907	1908	1909	1910	1911	1912	1913	1914	...	1919	1920	1921	1922
A	7	6	4	4	4	4	3	3	3		4	5	5	7
B	..	..	..	..	..	..	..	..	..		..	..	..	13

Year	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934	1935	1936
A	4	4	3	2	2	3	3	3	3	3	4	4	5	4
B	6	5	5	4	4	5	5	5	5	5	6	6	6	5

We may consider first of all the average catch per day's absence from port. In pre-war years it amounted to 0.7 cwts. in 1906, but fell thereafter to 0.3 cwt. in the years 1912—14. In post-war years we have a maximum of 0.7 cwt. in 1922, rising from 0.4 cwt. in 1919. In 1923 already the average catch is down to 0.4 cwt., and in the years 1926—27 reaches only 0.2 cwt., a minimum for the post-war period. In the period from 1928 to 1936 there is again a slight rise, so that in the years 1933 to 1936 there is an average catch of 0.4 to 0.5 cwt.

Turning now to the average catch per 100 hours fishing, which has been calculated since 1922 (inclusive), it will be noticed that a maximum (of 13 cwts.) is also shown here in 1922, but that the average catch falls considerably in the following years, reaching a minimum of only 4 cwts. per 100 hours fishing in the years 1926—27. In the remaining years (1928—36) the average catch fluctuates between 5 and 6 cwts.

As will be seen, the annual fluctuations in the two methods of calculation used follow in the main quite the same course and both methods point to a well-marked decrease in the average catch since the first post-war years. It is worth noting further, that the total yield of the trawl fishery in the two years with the lowest averages (1926—27) was remarkably low (see Fig. 4), whilst the total in the year with the highest average (1922) was not remarkably great.

B. Line fishery at the Faroes (England). For the English line fishery after Halibut at the Faroes we find data in the statistics of the average catch per day's absence from port, given in tenths of a cwt., for the years 1906—14 and 1919—36, as will be seen in Table 4.

Table 4. England — Steam Liners.
Average catch per day's absence from port (in $^1/_{10}$ths of cwt.).

Year	1906	1907	1908	1909	1910	1911	1912	1913	1914	...	1919	1920	1921	1922
Average catch	56	71	75	71	42	35	37	39	34		115	110	99	68
Year	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934	1935	1936
Average catch	74	62	68	43	39	25	24	34	23	29	31	13	17	17

In the pre-war years we find a distinct decrease in the average catch per day's absence from port, the average in 1907—09 lying about 7.0—7.5 cwts., whilst in the years 1911—14 it declines to almost the half, ca. 3.5—4.0 cwt. Immediately after the war, however, the average lies much higher than in the best pre-war years. Thus, the years 1919—21 show an average catch of ca. 10—11.5 cwt., but thereafter we see a more or less regular decrease down to the latest years. In the years 1922—23 the average was about 7.0 cwts., 1924—25 ca. 6.5 cwts., 1926—27 ca. 4.0 cwts. and in the years 1928—33 about 2.0—3.5 cwts., then finally it only amounts to 1.3—1.7 cwts. in the last 3 years (1934—36). In the last period therefore, the average catch of the steam liners in Faroese Waters, per day's absence from port, has only amounted to about 17—18 % of the average catch in the years 1919 -21.

4. Scotland.

Detailed information regarding the Scottish Halibut fishery in the waters round the Faroes only goes back in the official statistics to the year 1922, but through the kindness of the Fishery Board for Scotland I have been able to obtain further data going right back to 1903.

The total yield annually of the Scottish fishery at the Faroes has been noted earlier (see p. 5), but since we have special data for the trawl and line fisheries in these waters from the years 1922—36, we may consider these in more detail. As shown in Table 5, excluding the years 1922—23, we have data for both foreign and British vessels.

Table 5. Scotland. Landings of Halibut in Scotland from the Faroese Waters (1922—36).

	British Vessels			Foreign Vessels				British and Foreign Vessels		
	Trawls	Lines	Total	Trawls	Lines	Nets	Total	Trawls	Lines	Total
	cwts.	cwts.	cwts.	cwts.	cwts.	cwts.	cwts.	cwts.	cwts.	cwts.
1922	..	..	..	..	..	..	..	2,630	11,355	13,985
1923	..	..	..	..	..	..	..	1,948	10,466	12,414
1924	2,106	8,659	10,765	4	..	13	17	2,110	8,659	10,769
1925	1,081	5,966	7,047	..	..	..	..	1,081	5,966	7,047
1926	1,550	8,702	10,252	1	..	..	1	1,551	8,702	10,253
1927	1,347	9,820	11,167	1	10	..	11	1,348	9,830	11,178
1928	1,568	6,616	8,184	4	..	..	4	1,572	6,616	8,188
1929	1,252	2,980	4,232	8	..	..	8	1,260	2,980	4,240
1930	2,479	3,844	6,323	..	..	..	..	2,479	3,844	6,323
1931	3,777	4,542	8,319	..	57	..	57	3,777	4,599	8,376
1932	3,204	6,875	10,079	..	64	4	68	3,204	6,939	10,143
1933	3,139	5,006	8,145	..	80	10	90	3,139	5,086	8,225
1934	3,015	6,164	9,179	..	6	..	6	3,015	6,170	9,185
1935	3,256	8,406	11,662	..	17	..	17	3,256	8,423	11,679
1936	3,191	7,456	10,647	..	88	..	88	3,191	7,544	10,735

The data given in Table 5 for British and foreign vessels, trawlers and liners, are represented graphically in Fig. 5. In the case of the trawlers the catch for the years 1922—24 lies approximately between 2,000 and 2,600 cwts., whilst in the period 1925—29 it fluctuates about 1,500 cwts., thus a slight decrease, but then it rises in 1930 and 1931 to respectively ca. 2,500 and 3,700 cwts. and then remains more or less constant between ca. 3,000 and 3,300 cwts. per annum. Comparing the average catches of the Scottish trawlers in Faroese Waters for the years 1922—29 with those for the years 1931—36, we find respectively 1,687 cwts. and 3,264 cwts.; in other words, the catch of this trawl fishery has about doubled itself in the second period considered.

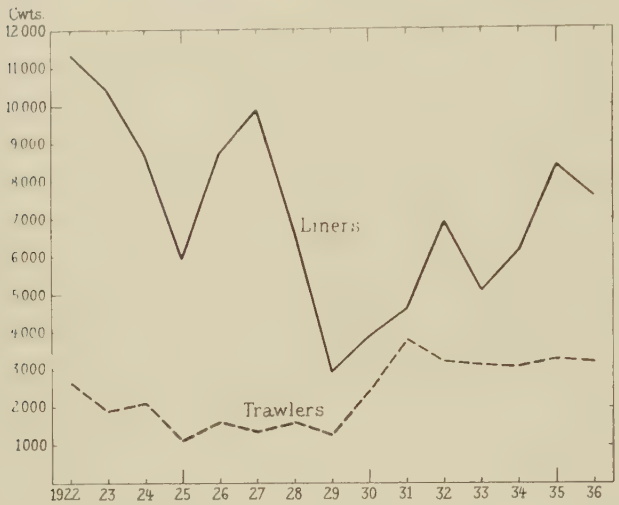

Fig. 5. Scotland. Halibut landings from the Faroes 1922—36.

Considering now the yield of the line fishery in the years 1922—36 we notice, that it pursues a somewhat more irregular course and shows large and quite different fluctuations from the trawl fishery. In the years 1922—25 there is an even fall in the yield from ca. 11,300 cwts. down to ca. 6,000 cwts., in 1926—27 the yield rises again to ca. 9,800 cwts. then in 1928—29 it goes down to respectively 6,616 and 2,980 cwts. With 1929 as minimum there is then a fairly even rise in the yield of the line fishery until 1935—36, where it lies about 8,000 cwts. Even though the yield of the Scottish line fishery at the Faroes has been on an average considerably less in the years since 1930 than in the period 1922—27, yet there are indisputable signs of a fairly regular increase in the yield during the last 5—6 years.

A. Trawl fishery in Faroese Waters (Scotland). Regarding this fishery we have obtained from the Fishery Board for Scotland monthly data of the average catch per 100 hours fishing from 1903 to 1936. In addition to the material noted in Table 6, which applies to British trawlers, there is a little information regarding foreign trawlers, but this is so insignificant, as can be seen also from Table 5, that it is left out of consideration here.

To obtain a better view of the fluctuations in the fishery over this long period, we may divide the material into 6 different intervals and calculate the monthly averages for each of these. Two periods fall in the pre-war years, 1903—08 and 1909—13, one in the war years 1914—18, and the post-war periods are 1919—24, 1925—30 and 1931—36.

Table 7 shows the monthly average catches for each of the 6 periods, as also the mean for the whole period from 1903 to 1936.

Considering the monthly averages for the whole period 1903—36 we see, that the variations in the yield are not great throughout the different months, namely from 5.1 to 7.3 cwts., but it is worth noting, that we have the smallest catches, i. e. less than 6 cwts., in the months from February to May (inclusive).

A better view of the fluctuations in the monthly average catches in the 6 periods mentioned can be obtained, if we calculate for each of the periods the positive or negative deviations

Table 6. Monthly average catches (in cwts.) per 100 hours fishing in the Waters round the Faroes 1903—36.

British trawlers. Aberdeen.

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1903	8.3	—	5.0	9.2	10.7	8.6	24.4	19.8	—	—	22.9	—
1904	12.4	10.8	15.7	16.6	13.7	24.2	17.6	22.6	11.1	23.3	19.6	42.3
1905	6.2	—	13.0	11.2	11.0	11.3	13.3	10.0	11.7	—	27.2	—
1906	18.6	10.2	9.8	12.9	8.8	5.7	9.2	11.0	18.6	14.9	11.0	8.6
1907	8.2	6.5	9.9	9.1	6.8	11.3	9.2	9.6	13.3	11.6	6.0	8.5
1908	7.7	5.1	7.1	6.3	5.3	5.7	0.0	4.5	9.6	10.3	5.0	—
1909	—	—	7.1	6.5	5.2	10.5	12.4	8.2	6.2	10.3	—	9.0
1910	7.1	8.0	8.6	7.4	4.8	11.3	8.2	6.9	9.3	5.8	8.2	6.5
1911	7.6	7.9	6.1	6.0	4.9	5.7	4.9	7.6	7.9	5.2	1.7	6.6
1912	5.5	6.8	3.9	3.4	3.4	3.9	3.8	3.3	3.3	2.1	3.5	4.4
1913	3.8	5.8	4.6	4.1	3.3	3.9	3.5	5.4	5.3	4.4	4.2	3.5
1914	2.2	4.6	3.8	3.4	3.2	4.9	3.3	7.5	6.9	5.9	7.3	5.6
1915	5.5	4.6	4.2	3.1	3.0	5.4	5.1	5.4	6.4	6.6	4.4	4.8
1916	7.0	6.8	5.1	4.0	3.1	3.5	4.1	4.6	5.1	4.8	4.1	4.8
1917	4.0	2.8	2.8	2.7	2.7	1.5	2.1	—	—	—	—	—
1918	—	—	—	3.6	2.5	2.7	—	—	1.3	2.3	—	—
1919	2.8	2.8	3.1	3.7	5.5	3.3	4.3	4.4	5.3	8.7	—	3.9
1920	4.5	3.7	5.3	4.9	7.4	20.3	7.6	7.1	7.9	8.3	6.0	5.8
1921	10.6	7.7	6.4	5.4	5.6	3.8	—	12.5	—	—	6.7	14.3
1922	5.4	9.1	8.7	3.9	4.6	10.9	6.0	7.4	5.1	8.3	6.9	4.2
1923	4.6	4.6	4.9	—	4.7	6.7	3.9	3.9	4.6	4.6	6.2	5.1
1924	5.5	5.5	5.2	3.0	4.1	4.1	4.9	4.0	5.6	4.9	3.7	3.6
1925	3.1	4.4	3.6	2.8	3.3	5.4	3.0	3.7	3.3	2.7	3.4	3.7
1926	2.6	3.3	4.4	3.9	3.8	4.3	5.5	5.0	4.0	3.4	3.1	2.1
1927	2.6	2.7	2.8	2.7	3.4	4.0	2.9	4.0	4.7	6.4	4.9	4.0
1928	3.8	3.3	3.3	2.9	4.2	4.4	4.2	5.3	6.3	5.5	5.9	5.1
1929	5.6	5.0	3.6	3.3	4.8	5.4	5.0	4.1	3.2	4.3	2.8	2.6
1930	2.5	2.7	2.3	2.4	4.0	4.5	6.0	6.1	5.9	7.5	6.9	7.1
1931	7.4	7.2	6.9	5.7	5.4	4.5	5.8	5.4	6.3	6.6	6.4	5.0
1932	4.5	5.0	4.9	3.6	4.6	4.6	5.4	6.6	7.5	6.9	7.5	7.4
1933	7.6	7.8	6.9	4.9	4.6	4.2	4.3	5.6	3.5	3.5	4.9	5.5
1934	4.5	4.4	5.1	4.0	3.6	5.9	5.4	6.1	7.6	7.0	7.5	8.3
1935	7.3	6.1	5.4	6.2	5.1	4.7	5.3	5.6	4.2	5.3	8.3	7.0
1936	7.6	7.0	6.0	5.5	3.7	3.6	3.6	3.8	4.2	4.3	3.0	3.1

Table 7. Monthly average catches (in cwts.) per 100 hours fishing in the Waters round the Faroes, arranged in 6 periods, for the years 1903—36.

British trawlers. Aberdeen.

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1903—08	10.2	8.1	10.1	10.9	9.4	11.1	12.3	12.9	12.9	15.0	15.3	19.8
1909—13	6.0	7.1	6.1	5.5	4.3	7.1	6.6	6.3	6.4	5.6	4.4	6.0
1914—18	4.7	4.7	4.0	3.4	2.9	3.6	3.6	5.8	4.9	4.9	5.3	5.1
1919—24	5.6	5.6	5.6	4.2	5.3	8.2	5.3	6.5	5.7	7.0	5.9	6.1
1925—30	3.4	3.6	3.3	3.0	3.9	4.7	4.4	4.7	4.6	5.0	4.5	4.1
1931—36	6.5	6.2	5.9	5.0	4.5	4.6	5.0	5.5	5.5	5.6	6.3	6.0
Mean 1903—36	6.1	5.7	5.9	5.4	5.1	6.6	6.4	7.1	6.6	6.8	7.3	7.0

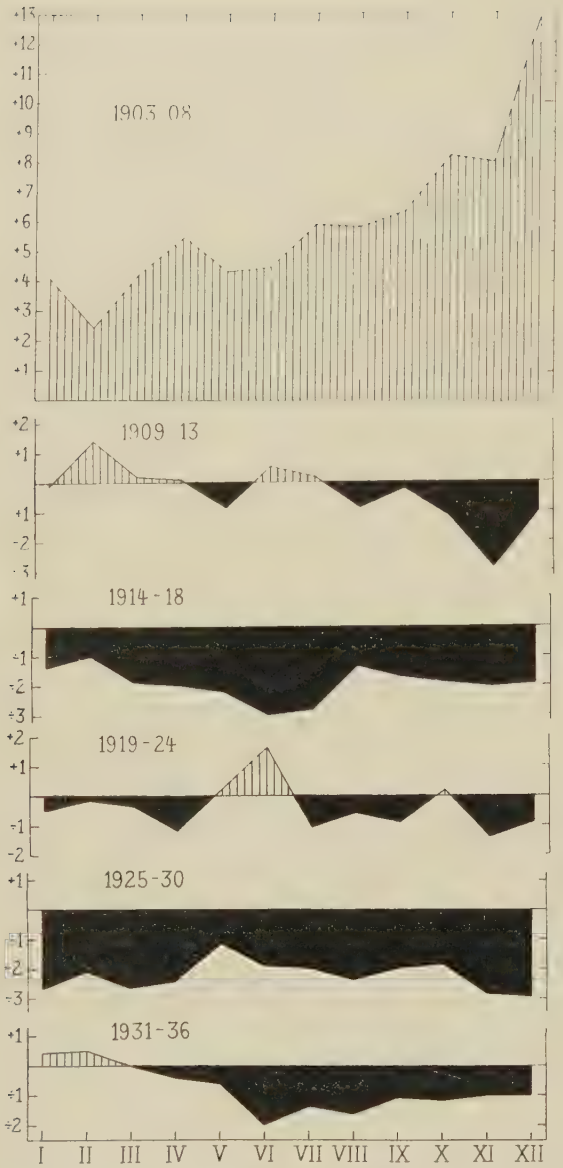

Fig 6. Deviations from the monthly average catches for the whole period 1903—36 in the periods 1903—08, 1909—13, 1914—18, 1919—24, 1925—30 & 1931—36. British Trawlers (Aberdeen) fishing in Faroese Waters.

from the averages for the whole period 1903—06; these deviations may be read directly from the different curves given in Fig. 6.

As shown by Fig. 6, the average catches in the period 1903—08 were much greater in all months of the year than the averages for any of the following periods, and already in the period 1909—13 there was such a considerable decrease in the yield, that in most months of the year the average lies below the mean catch for the whole period 1903—36. In the war years the monthly averages were everywhere considerably below the mean. In the period 1919—24 the catch was somewhat better, but it only exceeded the mean in a single month (June), and in the period 1925—30 the average catch in all months of the year was considerably below the mean. Lastly, the period 1931—36 again appears more favourable than 1925—30, but only a couple of months (Jan.-Feb.) show an average catch above the mean for the whole period 1903—36.

For a more comprehensive comparison we may now use the data in Table 7 to calculate the average catch per month for the different periods; with the following result:

1903—08	— 12.3 cwts.	1919—24	— 5.9 cwts.
1909—13	— 5.9 cwts.	1925—30	— 4.1 cwts.
1914—18	— 4.4 cwts.	1931—36	— 5.5 cwts.

It thus appears from this method of calculation, how much greater was the catch in the period 1903—08 than in any of the remaining periods, the averages for the latter being all less than half the amount for the first period. In the periods 1909—13 and 1919—24 the amount is the same, yet considerably larger than in the periods 1914—18 and 1925—30. In this last we have the lowest average of all the 6 periods, whilst there is a slight rise in the catch during the later years, 1931—36. On the whole, therefore, the fluctuations in the yield of the Scottish trawl fishery at the Faroes agree with the conditions in the English trawl fishery (see p. 8).

B. Line fishery at the Faroes (Scotland). Regarding the line fishery in Faroese Waters we have from the Fishery Board of Scotland monthly data of the catch (in cwts.) per 100 lines fishing, from 1908 to 1936, as shown in Table 8, but from 1916—19 the information is scanty and these years are omitted from consideration in the comparison below.

Table 8. Monthly average catches (in cwts.) per 100 lines fishing in Faroese Waters. British Liners. Aberdeen.

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1908	9.1	14.5	30.0	38.7	41.0	71.1	62.6	41.2	40.5	45.9	35.7	12.2
1909	17.0	—	20.8	38.6	80.8	69.4	69.1	60.0	62.1	36.8	29.5	15.9
1910	8.4	15.4	18.6	37.3	56.4	68.3	55.3	39.2	46.3	62.2	24.4	10.9
1911	27.8	—	28.1	39.6	38.2	—	44.9	43.8	33.9	26.6	21.3	10.3
1912	7.8	12.6	21.5	24.0	27.7	42.4	37.7	32.8	32.6	21.3	13.1	11.2
1913	11.1	17.2	18.2	29.8	34.8	44.3	35.9	34.6	35.5	15.5	30.8	10.4
1914	14.4	21.4	21.1	31.5	30.7	35.9	41.7	41.7	—	34.8	28.3	22.9
1915	7.8	13.3	14.8	30.4	40.0	57.8	43.3	32.9	—	—	—	—
1916	—	9.7	21.7	—	—	92.0	63.4	72.9	44.8	29.2	—	—
1917	—	—	—	—	—	—	—	—	—	—	—	—
1918	—	—	—	—	—	—	—	—	—		—	—
1919	—	—	—	78.8	—	—	—	136.8	81.9	—	—	63.3
1920	30.2	83.0	81.3	101.3	73.8	66.9	84.9	83.5	65.4	65.2	50.6	27.0
1921	28.5	49.1	42.3	64.5	71.0	99.4	90.2	87.2	70.2	82.6	46.6	35.3
1922	27.6	34.1	46.1	39.2	44.6	75.2	61.1	53.9	51.2	42.2	36.4	20.1
1923	13.0	19.5	26.5	—	52.3	39.3	58.8	42.9	35.6	32.3	22.0	19.9
1924	19.3	18.6	26.1	39.3	41.9	41.6	44.1	47.3	35.4	28.2	14.6	8.4
1925	11.6	15.9	18.5	19.3	55.6	27.9	26.7	32.1	30.5	14.9	14.7	7.1
1926	8.1	16.5	20.0	26.7	24.9	26.1	33.2	50.9	24.4	14.3	8.0	4.1
1927	4.7	7.6	12.2	19.0	35.7	47.5	30.4	26.6	17.2	12.4	4.2	4.1
1928	3.5	5.6	11.7	16.5	18.3	20.0	29.0	22.6	12.9	15.8	7.2	3.1
1929	4.7	5.1	6.6	13.5	24.3	18.9	18.2	23.9	15.2	16.0	13.4	3.6
1930	4.8	6.5	11.0	22.3	20.5	16.9	36.5	36.5	33.6	28.7	11.0	8.5
1931	11.0	8.8	9.6	22.4	26.8	20.8	24.4	31.5	23.8	16.5	11.5	6.1
1932	4.6	10.7	13.8	9.7	29.9	34.5	27.7	26.0	22.9	16.7	9.9	5.5
1933	5.2	7.7	7.1	24.5	22.0	25.8	21.6	23.3	18.9	19.0	19.0	6.6
1934	4.9	5.6	8.7	19.7	22.4	20.7	23.8	25.6	22.8	15.1	10.4	4.9
1935	4.2	5.6	9.1	21.4	30.3	20.5	24.1	17.7	19.5	14.5	7.6	6.7
1936	4.7	9.1	10.5	14.0	17.1	23.1	32.2	30.7	23.1	14.5	3.6	1.5

For convenience we may divide the whole period into 6 parts. Of these two come before 1916 and in these we can see how the monthly average catch varies in the period 1908—11 and in the years immediately before and at the beginning of the war. The scanty material

Table 9. Monthly average catches (in cwts.) per 100 lines fishing in Faroese Waters in 6 periods, from 1908—15 and 1920—36. British Liners. Aberdeen.

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1908—11	15.6	14.9	24.4	38.5	54.1	69.6	58.0	46.0	45.7	42.9	27.7	12.3
1912—15	10.3	16.1	18.9	28.9	33.3	45.1	37.6	35.5	34.0	23.8	24.1	14.8
1920—22	28.8	55.4	56.6	68.3	63.1	80.5	78.7	74.9	62.3	63.3	44.5	27.5
1923—26	13.0	17.6	22.8	28.4	43.7	33.7	40.7	43.3	31.5	22.4	14.8	9.9
1927—31	5.7	6.7	10.2	18.7	25.1	24.8	27.7	28.2	20.5	17.9	9.5	5.1
1932—36	4.7	7.7	9.8	17.9	24.3	24.9	25.9	24.7	21.4	16.0	10.1	5.0
Mean 1908—15 and 1920—36	11.8	17.5	21.4	31.0	38.4	42.3	42.3	39.5	33.6	28.8	19.7	11.1

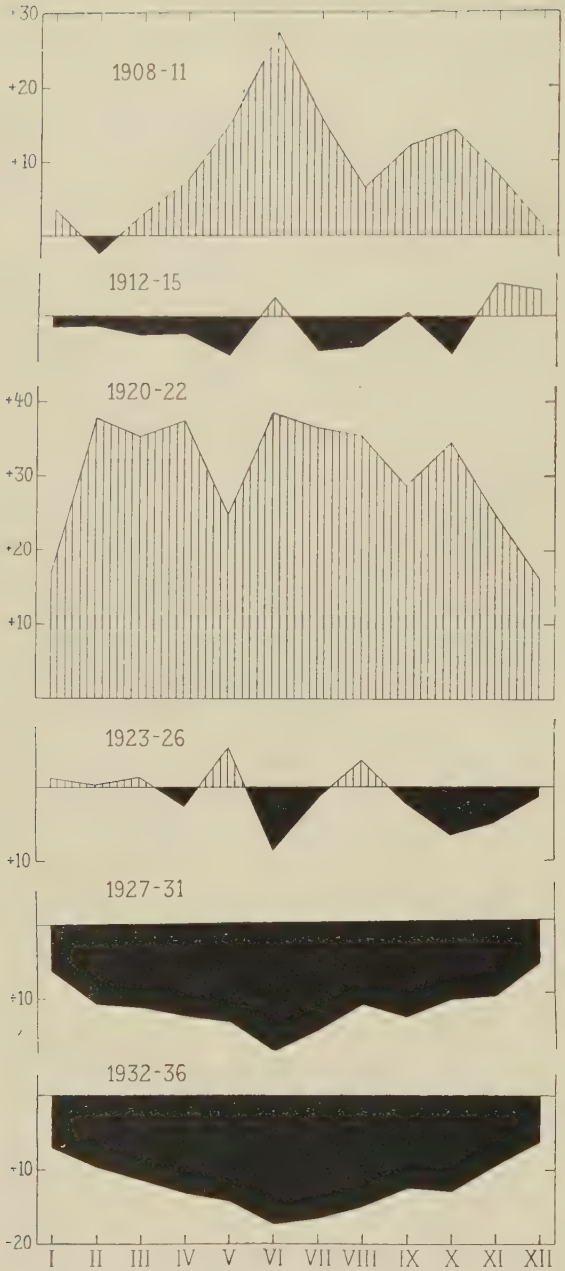

Fig. 7. Deviations from the monthly means in the periods 1908—15 and 1920—36 for the periods 1908—11, 1912—15, 1920—22, 1923—26, 1927—31 and 1932—36. British Liners (Aberdeen) fishing in Faroese Waters.

for the years 1916—19, as mentioned above, is omitted from consideration. The later period 1920—36 is divided into 4, so that we can follow the changes in the monthly average in the periods 1920—22, 1923—26, 1927—31 and 1932—36. The reason for taking only 3 years in the first period is, to emphasize the large catches made in the years immediately after the war-years 1914—18. The year 1919 is not included, as we have information from only 4 months of that year, but in all these the average catches were very large (see Table 8). The monthly averages calculated for each of the 6 periods mentioned, as also for the whole period 1908—15 and 1920—36, are shown in Table 9.

Taking now the monthly average catches for the two periods 1908—15 and 1920—36 as means and calculating the positive and negative deviations from these means, we obtain the curves shown in Fig. 7.

Fig. 7 illustrates the fact, that the monthly average catches in the first period 1908—11 lay quite considerably above the mean values for the whole material, but the yield in the period 1912—15 was quite considerably lower, the averages for most months being below the means for the respective months. In the period just after the world-war, 1920—22, we find a much greater average for 100 lines fishing than in any of the other periods, before or after the war. As will be seen, the average catches in all months of the year were quite considerably above the means for the whole material. In the period 1923—26 the averages greatly declined, yet they kept on the whole about the level of the means for the total period, sometimes above, sometimes below the latter. In the period 1927—31 the curve shows a marked downward tendency in all months of the year, and this also holds good, partly to a still greater degree, for the period 1932—36. It thus appears very clearly, that the line fishery in Faroese Waters has undergone a pronounced and steady decrease in yield from the years 1920—22 onwards to the last period (1932—36). As further illustration of this condition we represent in Fig. 8 the annual average catches for the years 1920—36, calculated from the monthly data given in Table 8.

It will be seen at once from Fig. 8, that the Scottish Line fishery in Faroese Waters has yielded approximately 65 cwts. per 100 lines fishing in the years 1920–21, whereas in 1935—36 it has resulted in only ca. 15 cwts.; in other words, the catch per 100 lines fishing only amounts in the latest years to about 23% of what it was in 1920—21. A somewhat similar decrease, as noted above, has also occurred in the English Line fishery (p. 9).

II. Icelandic Waters.

1. Total Yield of the Halibut fishery in the years 1906—1935.

The total quantities of Halibut taken in Icelandic Waters are shown in Table 10, and details for the different years are represented graphically in Fig. 9.

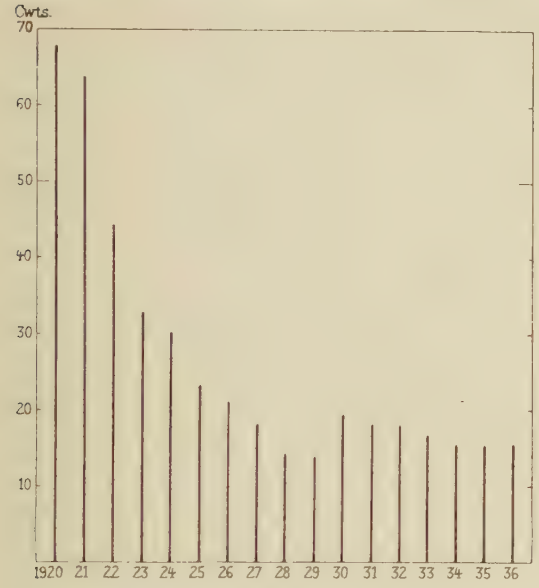

Fig. 8. Annual average catches (in cwts.) per 100 lines fishing by British Liners (Aberdeen) in Faroese Waters in the period 1920—36.

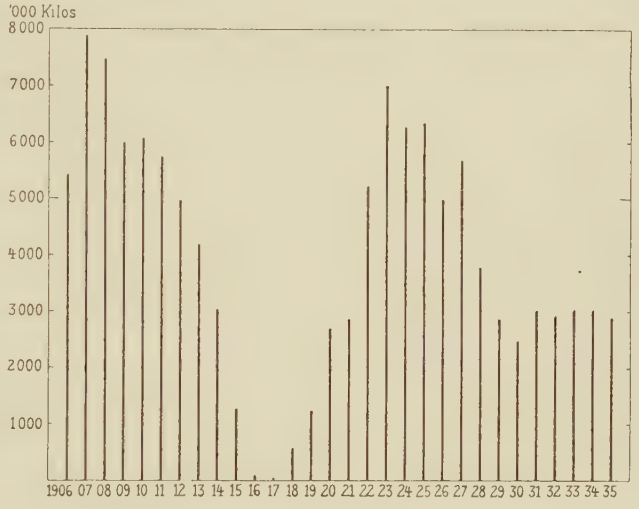

Fig. 9. Total Yield (in '000 kgs.) of the Halibut fishery in Icelandic Waters in the years 1906—35.

The yield was largest in the years from 1906 to 1914, namely about 8,000,000 kgs. in 1907; thereafter it falls more or less evenly till 1914 when only ca. 3,000,000 kgs. were taken. In the war years 1914—18 the yield was extremely small with a minimum in 1917. After the war there is a sharp rise in the yield from 1919 to 1923, when there is a maximum of ca. 7,000,000 kgs. In the years 1923–27 the quantities remain between ca. 5,000,000 kgs. and 7,000,000 kgs., then decline to about 3,000,000 kgs. up to 1935. Thus, in the period 1929–35 only about $^1/_2$ of the 1922—27 yield has been taken.

2. Share of the different countries in the Icelandic Halibut fishery in the years 1906—1935.

A summary of the quantities of Halibut (in '000 kgs.) taken by the different countries, as also of the total catch in the years 1906—35 is given in Table 10.

Table 10. Quantities (in '000 kgs.) of Halibut taken in Icelandic Waters by the different countries in the years 1906—35, with the total catch.

	Belgium	Denmark	England	Faroe Islands	Germany	Holland	Iceland	Norway	Scotland	Sweden	Total
1906	4	—	4,983	—	84	9	299	—	46	—	5,425
1907	1	30	7.219	—	185	10	375	—	100	—	7,920
1908	6	—	6,939	—	268	14	253	—	75	—	7,555
1909	20	—	5,445	—	307	20	173	—	41	—	6,006
1910	11	—	4,632	—	419	26	132	—	928	—	6,148
1911	5	—	4,831	—	449	13	233	—	251	—	5,782
1912	4	—	4,090	—	323	13	261	—	266	—	4,957
1913	—	—	3,500	—	255	10	252	—	235	—	4,252
1914	—	—	2,649	—	113	4	87	—	198	—	3,051
1915	—	—	1,102	—	—	28	68	—	118	—	1,316
1916	—	—	—	—	—	27	64	—	58	—	149
1917	—	—	—	—	—	—	57	—	13	—	70
1918	—	—	—	—	—	—	443	—	—	—	443
1919	—	—	722	—	54	—	473	—	42	—	1,291
1920	—	—	1,674	—	225	4	731	—	46	—	2,680
1921	—	—	2,201	—	196	14	373	—	58	—	2,842
1922	..	..	4,211	..	(296[1])	3	398	..	322	..	(5,230)
1923	..	..	5,782	..	130	2	398	..	697	..	7,009
1924	—	..	5,270	..	202	3	274	..	577	..	6,326
1925	—	..	5,441	..	330	8	321	..	302	..	6,402
1926	—	..	4,091	..	376	3	280	..	250	..	5,000
1927	—	..	4,443	..	373	3	472	..	403	..	5,694
1928	5	13	2,790	..	373	4	340	..	229	..	3,754
1929	15	1	2,010	..	352	3	330	..	134	..	2,845
1930	7	3	1,629	1	313	3	413	..	165	4	2,538
1931	4	6	1,879	2	325	3	543	1	281	—	3,044
1932	11	22	2,098	4	321	1	322	15	163	1	2,958
1933	8	20	1,965	2	309	—	283	339	139	—	3,065
1934	9	16	2,087	2	318	—	383	66	177	—	3,058
1935	12	18	1,919	3	293	—	382	82	109	—	2,818

[1]) Faroes and Iceland.

As shown by Table 10, England is the country which has taken by far the largest quantities of Halibut in Icelandic Waters, in all years except the war years 1916—18. The relative proportion taken by England in this Halibut fishery can be seen from the following figures, for 5-year periods:

1906—10 ..... 88.4 %
1911—15 ..... 83.5 -
1920—24 ..... 79.5 -
1925—29 ..... 79.2 -
1930—34 ..... 65.9 - also for 1935: 68.1 %

As the English share in the Icelandic Halibut fishery amounts to such a large proportion of the total, it is obvious that the total yield will vary essentially with the English fishery. This is clearly seen in Fig. 10, giving the curves for the total fishery and the English fishery at Iceland. The reason for the decline in the total yield in the years 1929—35 to almost half what it was

in the period 1922—27 also comes essentially from the fact, that the English fishery has made a correspondingly smaller contribution to the total in the later years.

Considering now the part taken by other countries in the Icelandic Halibut fishery we find the principal ones to be: Germany, Iceland and Scotland. The annual curves for these three countries are shown in Fig. 11.

The various curves in Fig. 11 show a considerable amount of fluctuation in the catch of the three countries in the different years; in some years it is the German fishery, in others

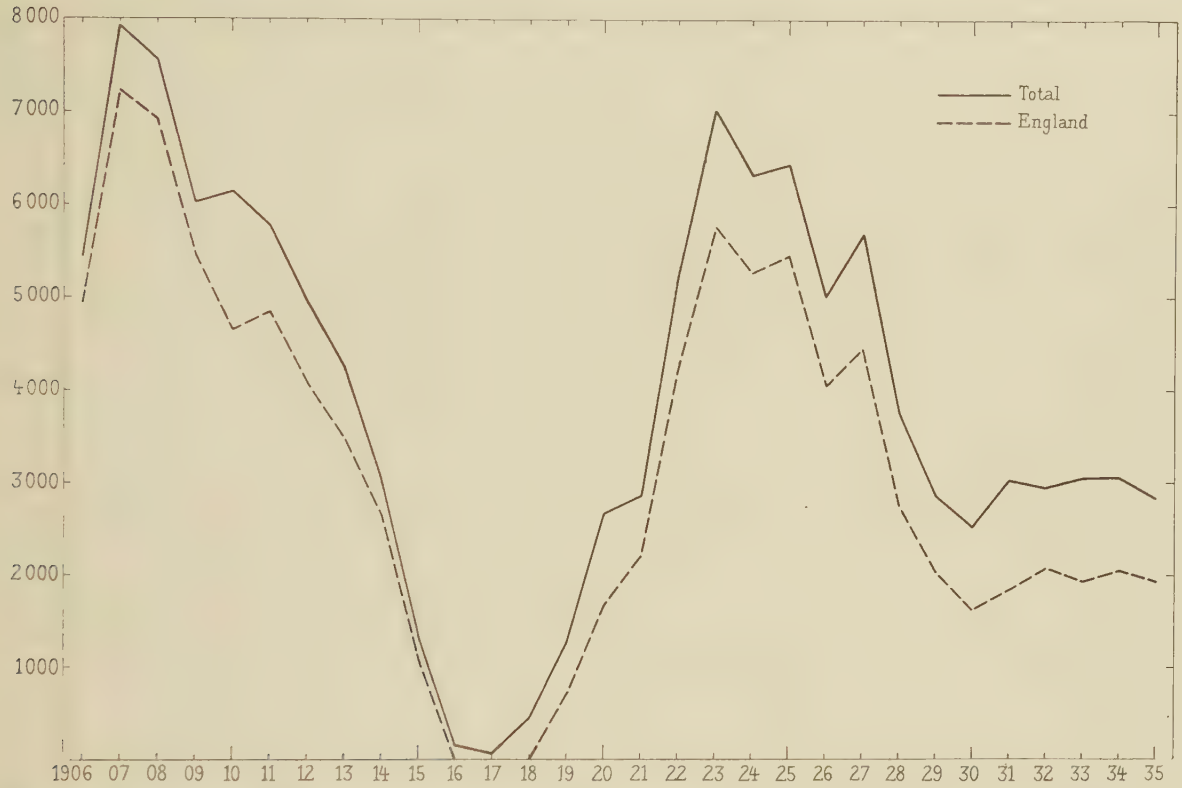

Fig. 10. Total Catch of Halibut and the quantities for England taken in Icelandic Waters in the years 1906—1935 (in '000 kgs.).

the Icelandic or the Scottish, which has given the largest yield. Before the war, for example, Germany has the largest yield in 1911, Iceland in 1907 and Scotland in 1910. After the war Germany has a maximum in 1926, Iceland in 1920 and Scotland in 1923; these fluctuations in the catches are certainly due therefore, more to accidental circumstances connected with the fishery than to any change in the size of the fish stock.

We may now study the course of the curves for the three countries somewhat in more detail. In the years immediately before the war it is quite clear, that the yield of the fishery was declining for all three countries. In the post-war years there is a regular increase in the curve for Germany from 1919 to 1926, after which the yield remains more or less constant, between 300,000 and 400,000 kgs., right till 1935. In the case of Iceland there is a very sharp rise from 1917—20, where there is a maximum (731,000 kgs.) and in the years 1921—35 the annual catch lies between ca. 300,000 and 500,000 kgs. Lastly, the curve for Scotland shows

an extremely sharp rise from 1921 to 1923, where there is a maximum (697,000 kgs.); after this the catch falls more or less evenly year by year, until in the years 1928—35 it lies about or even below 200,000 kgs. per annum. In the years 1930—35 we see that the Scottish catch has only amounted to about $^1/_3$rd of the catch in the years 1923—24.

Fig. 11. Catch of Halibut in Icelandic Waters by Iceland, Germany and Scotland for the years 1906—35 (in '000 kgs.).

3. England.

In this section we shall examine more closely the statistical information regarding the English fishery for the years 1906—36. In the English statistics a distinction is made between the catches of respectively trawlers and liners and the totals for the years 1906—14 and 1919—36 are given here in Table 11 (p. 19), no data being available for the war years 1915—18.

A graphic representation gives a better view over the fluctuations in the catches of trawlers and liners in the years 1906—14 and 1919—36; this is given in Fig. 12.

Consideration of Fig. 12 shows, that the trawl fishery has yielded almost the same quantities in the years 1906—14 as in the post-war years 1919—36. The fluctuations in any case are quite inconsiderable, the totals lying mostly between 20,000 and 30,000 cwts. per annum.

It is quite different with the line fishery. Before the war years the yield for the liners far exceeded that of the trawlers. In 1907 and 1908 there was a distinct maximum with an

Table 11. English Halibut fishery at Iceland 1906—14 and 1919—36.

	Trawlers	Liners	Total
	cwts.	cwts.	cwts.
1906	21,410	76,681	98,091
1907	25,653	116,457	142,110
1908	27,601	108,994	136,595
1909	25,554	81,626	107,180
1910	28,352	62,824	91,176
1911	23,427	71,674	95,101
1912	24,022	56,497	80,519
1913	22,451	46,449	68,900
1914	20,868	31,285	52,153
1919	13,273	944	14,217
1920	20,098	12,864	32,962
1921	18,052	25,283	43,335
1922	20,832	62,066	82,898
1923	22,331	91,494	113,825
1924	20,983	82,761	103,744
1925	24,848	82,257	107,105
1926	25,609	54,919	80,528
1927	36,229	51,235	87,464
1928	32,886	22,033	54,919
1929	31,371	8,197	39,568
1930	25,275	6,797	32,072
1931	30,791	6,205	36,996
1932	31,087	10,207	41,294
1933	33,695	4,981	38,676
1934	32,176	8,873	41,049
1935	30,859	6,912	37,771
1936	28,934	3,645	32,579

Fig. 12. Yield (in '000 cwts.) of English trawlers and liners from the Halibut fishery in Icelandic Waters, for the years 1906—14 and 1919—36.

annual catch of ca. 116,000 and 108,000 cwts., but in the years from 1911 to 1914 the yield falls evenly from ca. 71,000 to 31,000 cwts.

In the post-war years 1919 to 1923 there is a steady rise in the yield for the liners, and this culminates in the years 1923, 1924 and 1925, when the annual catch lies between ca. 82,000 and 91,000 cwts. Thereafter there is a rapid fall till 1929, when the liners' catch only amounts to ca. 8,000 cwts., and from 1929 to 1935 the total varies between ca. 5,000 and 10,000 cwts., until finally in 1936 it goes right down to ca. 3,600 cwts. Referring back to the English line fishery at the Faroes (see Fig. 4, p. 7), we see that a corresponding decrease in the quantities occurred there as at Iceland.

A. Trawl fishery at Iceland (England). On the basis of the English fisheries statistics dealing with the Halibut fishery by trawlers we may now investigate: 1. the average catch per day's absence from port and 2. the average catch per 100 hours fishing in the different years.

With regard to the average catch per day's absence from port the English statistics give information from the years 1906—14 and from 1919—36; the calculated quantities are given in Table 12, where the average catch per 100 hours fishing is likewise noted. The last-mentioned data however are only for the later years, 1922 to 1936. The average catch per day's absence is given in tenths of a cwt., whilst the average catch per 100 hours fishing is given in cwts.

Table 12. England — Steam trawlers.

A. Average catch per day's absence from port (tenths of a cwt.).
B. Average catch per 100 hours fishing (cwts.).

Year	1906	1907	1908	1909	1910	1911	1912	1913	1914	...	1919	1920	1921	1922
A	6	8	9	9	10	8	8	6	5		8	6	6	7
B	..	..	..	..	..	..	..	..	..		..	..	..	14

Year	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934	1935	1936
A	7	6	6	6	7	6	6	5	5	5	6	6	5	5
B	11	10	12	11	12	10	9	8	8	9	9	9	9	9

In pre-war years the average catch per day's absence from port lay between 0.5 and 1.0 cwt. with a maximum for the years 1908—10, and the amounts fall from 0.8 to 0.5 cwt. from 1911 to 1914. In post-war years the average catch per day's absence was 0.8 cwt. in 1919 and from 1920—29 about 0.6—0.7 cwt., whilst it has lain between 0.5 and 0.6 cwt. in the years 1930 to 1936. Though not specially marked there is thus a decrease to be traced in the average catch per day's absence in the later years.

Much more significant is the decrease in the average catch per 100 hours fishing since 1922. In that year the average was 14 cwts., in the years 1923—28 between 10 and 12 cwts. and from 1929 to 1936 the average is down to 8 and 9 cwts.

B. Line fishery at Iceland (England). For the Halibut line fishery at Iceland the English fisheries statistics give data regarding the average catch per day's absence from port, for the years 1906—14 and 1919—36, the data being in tenths of a cwt. The calculated averages for each year are shown in Table 13.

Table 13. England — Steam Liners.

Average catch per day's absence from port (tenths of a cwt.).

Year	1906	1907	1908	1909	1910	1911	1912	1913	1914	...	1919	1920	1921	1922
Catch	102	127	100	77	63	63	55	51	38		56	75	77	101

Year	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934	1935	1936
Catch	83	61	65	52	50	30	14	15	18	28	24	34	23	28

In the pre-war years the average catch per day's absence from port was highest in the years 1906—08, namely between 10.0 and 12.7 cwts. From 1909 to 1914 the average falls more or less evenly to only 3.8 cwts. in 1914. In the post-war years the maximum catch occurs in the year 1922 with 10.1 cwts., after rising from 5.6 cwts. in 1919; after 1922 the average catch gradually falls until the period 1929—31, when it lies as low as between 1.4 and 1.8 cwts. per day's absence from port. In the years 1932—36 a slight increase can again be noted, but the average catches only amount to such low values as 2.4 -3.4 cwts. It is thus quite obvious, that the average catch for the line fishery at Iceland, per day's absence from port, has diminished in the course of the last 12—15 years to about 30% of the catch in the years round 1922.

4. Scotland.

In the official fisheries statistics for Scotland information regarding the Halibut fishery at Iceland only goes back to 1922. From that year a distinction is made between the catches of trawlers and liners and from 1924, further, a distinction is made between British vessels and foreign vessels. The detailed figures, given in Table 14, are represented graphically in Fig. 13.

Table 14. Scotland. Halibut fishery at Iceland 1922—36.

	British Vessels			Foreign Vessels				British and Foreign Vessels		
	Trawls	Lines	Total	Trawls	Lines	Nets	Total	Trawls	Lines	Total
	cwts.	cwts.	cwts.	cwts.	cwts.	cwts.	cwts.	cwts.	cwts.	cwts.
1922	..	..	..	..	..	..	..	1,909	4,420	6,329
1923	..	..	..	..	..	..	..	3,228	10,501	13,729
1924	288	8,539	8,827	2,539	..	..	2,539	2,827	8,539	11,366
1925	53	2,795	2,848	3,063	10	26	3,099	3,116	2,805	5,921
1926	3	2,082	2,085	2,837	—	2	2,839	2,840	2,082	4,922
1927	65	5,639	5,704	2,216	—	10	2,226	2,281	5,639	7,920
1928	89	4,422	4,511	1,737	—	6	1,743	1,826	4,422	6,248
1929	287	2,355	2,642	1,224	35	—	1,259	1,511	2,390	3,901
1930	219	3,020	3,239	1,191	32	9	1,232	1,410	3,052	4,462
1931	191	5,347	5,538	969	13	4	986	1,160	5,360	6,520
1932	237	2,969	3,206	417	315	33	765	654	3,284	3,938
1933	189	2,544	2,733	404	195	51	650	593	2,739	3,332
1934	168	3,322	3,490	456	—	31	487	624	3,322	3,946
1935	98	2,049	2,147	209	—	20	229	307	2,049	2,356
1936	250	3,986	4,236	199	6	11	216	449	3,992	4,441

It appears from Table 14, that the total catch for the trawlers has fallen greatly from the period 1923—26 up to the present. Whilst the average catch at the former time lies between ca. 2,800 and 3,200 cwts., it only amounts to between ca. 300 and 600 cwts. per annum in the years 1933—36. Examining the returns for respectively British and foreign vessels we see, that in the case of trawlers it is the catch of the foreign trawlers which has fallen so extremely low in recent years. In the line fishery the British vessels play by far the greater part in the Scottish Halibut fishery at Iceland and the curve Fig. 13 shows that considerable fluctuations occur in the annual catch of the liners. In the years 1923 and 1924 the maximum catch is respectively ca. 10,500 and 8,500 cwts., in 1927 it is about 5,600 and in 1931 ca. 5,300 cwts., but in all the intermediate years and the years following 1931 the yield becomes considerably smaller, usually between 2,000 and 4,000 cwts. per annum. On the whole, however, there has been a continued decrease in the catch, which in the last 5 years has been approximately only one-third of the catch in the years 1923 -24.

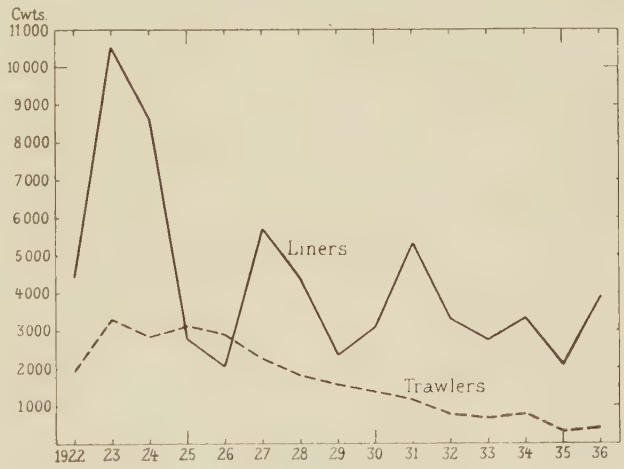

Fig. 13. Scotland. Halibut fishery at Iceland 1922—36.

A. Trawl fishery at Iceland (Scotland). In the statistical material received from the Fishery Board for Scotland concerning the Halibut fishery at Iceland we have, for the trawl fishery, monthly records of the average catch per 100 hours fishing from 1904 to 1936. The material refers to catches from British and foreign vessels landed at Aberdeen. No distinction is made for the years from 1904 to 1923, but British and foreign vessels are separated from and with the year 1924. The Tables 15 and 16 give the monthly records for respectively the British and foreign vessels.

Table 15. Monthly average catches (in cwts.) per 100 hours fishing in Icelandic Waters 1904—36.

British trawlers. Aberdeen.

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual Mean
1904	16.7	—	—	4.7	13.2	12.7	12.0	24.2	29.2	35.0	—	—	18.5 (8)
1905	—	11.8	12.1	9.2	5.4	5.6	4.6	6.4	22.9	36.7	—	—	12.7 (9)
1906	5.0	1.1	2.5	5.0	4.0	6.4	7.8	10.1	8.8	2.9	0.9	5.5	5.0
1907	1.1	1.2	1.3	3.1	7.0	12.1	4.9	6.1	6.2	6.6	5.2	1.4	4.7
1908	0.8	1.8	1.9	4.1	5.5	4.7	5.6	5.5	9.6	7.3	—	2.8	4.5 (11)
1909	3.3	2.8	5.2	4.7	2.4	6.5	7.3	9.1	4.7	3.3	—	9.2	5.3 (11)
1910	3.4	5.8	3.5	3.0	4.4	8.2	5.5	8.0	10.7	13.7	15.1	7.2	6.5
1911	7.2	4.6	4.9	5.1	7.4	9.8	7.8	8.5	9.3	24.2	20.5	8.0	9.8
1912	5.7	4.4	2.2	4.1	8.3	8.1	5.7	4.9	4.5	8.1	11.4	6.3	6.1
1913	7.1	2.3	2.3	1.7	5.1	7.8	5.7	4.4	5.5	5.6	4.6	2.5	4.6
1914	2.0	1.8	1.0	1.5	3.2	7.4	5.0	6.3	11.8	9.8	17.1	24.0	7.6
1915	12.2	4.6	10.2	7.7	10.4	16.0	11.8	13.1	15.1	28.8	4.2	40.6	14.6
1916	—	4.0	7.4	8.2	9.0	5.9	8.7	13.1	11.3	8.0	—	12.5	8.8 (10)
1917	—	6.3	2.5	2.3	4.2	5.5	5.3	—	—	—	—	—	4.3 (6)
1918	—	—	—	—	—	—	—	—	—	—	—	—	—
1919	—	—	3.6	4.5	8.5	23.7	19.5	14.5	11.4	—	21.2	—	13.4 (8)
1920	72.1	6.3	3.5	4.1	5.7	14.1	23.1	1.6	6.3	—	13.0	11.1	14.6 (11)
1921	4.2	16.3	3.3	2.0	4.7	11.6	—	—	—	—	14.8	—	8.1 (7)
1922	5.3	4.4	1.9	1.6	3.6	5.9	4.3	3.2	4.4	7.7	6.2	5.8	4.5
1923	4.7	2.5	2.1	1.4	1.6	3.0	1.0	7.8	6.0	6.0	5.3	4.9	3.9
1924	11.4	2.6	3.3	1.0	1.3	—	20.9	44.1	46.5	59.3	28.4	6.8	20.5 (11)
1925	6.1	10.0	2.3	3.2	16.7	—	—	—	—	—	—	—	7.7 (5)
1926	—	—	—	—	—	9.7	—	—	—	—	—	—	9.7 (1)
1927	—	—	6.0	—	3.9	4.9	—	12.4	—	17.0	—	—	8.8 (5)
1928	9.0	2.7	4.6	1.4	3.1	4.9	1.4	7.2	4.0	4.5	—	—	4.3 (10)
1929	3.9	4.8	1.0	1.1	2.0	5.4	1.8	22.7	4.5	20.3	12.4	3.4	6.9
1930	5.6	3.8	2.8	2.8	1.2	6.6	6.5	3.3	2.9	6.1	11.4	9.4	5.2
1931	5.9	5.0	3.5	3.2	2.5	5.3	7.4	3.9	5.4	7.6	6.5	8.3	5.4
1932	7.9	4.5	4.5	1.6	2.8	5.4	2.6	2.4	8.1	3.3	10.4	7.3	5.1
1933	23.5	10.1	1.5	1.8	0.9	4.9	11.4	3.2	3.6	3.0	—	4.3	6.2 (11)
1934	0.0	—	2.9	2.6	2.1	4.1	7.6	4.0	5.1	9.0	15.4	10.5	5.8 (11)
1935	—	1.3	1.9	1.1	1.9	2.1	4.4	5.4	2.9	15.2	6.1	—	4.2 (10)
1936	2.4	16.0	2.4	0.9	2.9	5.7	6.8	2.6	7.5	—	10.0	11.4	6.2 (11)

Combining now the average monthly catches of British trawlers, into 5-year periods for the time before and during the war and 6-year periods since then, we obtain altogether 6 periods with the average catches shown in Table 17 (p. 23), which also shows the total monthly average for the whole period 1904—36.

Table 16. Monthly average catches (in cwts.) per 100 hours fishing in Icelandic Waters. Foreign trawlers. Aberdeen.

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual Mean
1924	3.0	1.7	1.1	0.8	1.5	3.2	3.1	3.2	6.4	6.6	6.6	5.0	3.5
1925	4.6	3.1	1.8	1.3	2.8	4.1	4.7	3.3	8.6	6.5	6.7	6.0	4.5
1926	6.5	3.8	2.7	2.0	2.6	3.3	4.7	4.7	5.1	9.1	13.9	12.6	5.9
1927	12.8	3.4	3.2	2.0	2.6	3.2	2.4	4.3	3.7	5.3	5.0	6.3	4.5
1928	5.8	3.2	2.3	1.4	2.4	3.4	1.6	3.0	1.6	—	3.5	5.1	3.0 (11)
1929	5.8	2.0	1.6	1.6	1.6	2.5	1.2	5.0	2.5	3.3	4.2	5.5	3.1
1930	2.6	1.4	1.9	1.6	1.9	4.0	2.4	1.3	3.3	2.1	5.4	6.3	2.8
1931	5.3	2.5	1.8	2.0	2.5	4.0	4.5	2.4	—	7.2	3.5	2.7	3.5 (11)
1932	6.2	3.2	2.8	1.6	2.9	2.4	4.8	2.8	—	1.1	6.6	9.5	4.0 (11)
1933	4.3	2.6	1.5	3.6	1.8	2.7	1.1	—	—	3.5	3.1	5.1	2.9 (10)
1934	6.2	3.3	3.2	2.7	4.5	3.6	—	—	—	—	2.8	17.0	5.4 (8)
1935	4.1	2.7	1.5	3.0	3.5	3.7	—	—	—	—	4.4	5.1	3.5 (8)
1936	14.8	6.9	3.6	5.1	2.3	2.7	—	—	—	—	—	—	5.9 (6)

Table 17. Monthly average catches (in cwts.) per 100 hours fishing in Icelandic Waters, arranged in 6 periods within the whole period 1904—36. British trawlers. Aberdeen.

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1904—08	5.9	4.0	4.4	5.2	7.0	8.3	7.0	10.5	15.3	17.7	3.0	3.2
1909—13	5.3	4.0	3.6	3.7	5.5	8.1	6.4	7.0	6.9	11.0	12.9	6.6
1914—18	7.1	4.2	5.3	4.9	6.7	8.7	7.7	10.8	12.7	15.5	10.6	25.7
1919—24	19.5	6.4	2.9	2.4	4.2	11.7	13.8	14.2	14.9	24.3	14.8	7.1
1925—30	6.1	5.3	3.3	2.1	5.4	6.3	3.2	11.4	3.8	12.0	11.9	6.4
1931—36	7.9	7.4	2.8	1.9	2.2	4.6	6.7	3.6	5.4	7.6	9.7	8.4
Mean 1904—36.....	9.1	5.3	3.6	3.3	5.0	7.8	7.7	9.2	9.9	14.0	11.4	9.2

Consideration of the monthly average catches for the whole period 1904—36 shows, that there is a distinct minimum in the catches in the spring months from February to May. This possibly is connected with the spawning time of the Halibut, since a part of the stock undoubtedly leave the shallower waters where trawling is carried on. Something similar, though to a less marked degree, also occurred in the trawl fishery at the Faroes (p. 10).

Using the monthly average catches for the whole period 1904—36 as the means and calculating the positive and negative deviations therefrom for the 6 different periods, we obtain the curves shown in Fig. 14 (p. 25).

Comparing first of all the pre-war years 1904—08 and 1909—13 it will be noticed, that the average catches in the period 1909—13 were considerably less than in the period 1904—08. In the war years 1914—18, when the conditions were undoubtedly on the whole very extraordinary, we find, on the whole, positive deviations from the mean for the whole period 1904—36. In the 6-year period immediately after the war (1919—24) the monthly average catches were on the whole considerably above the means for the whole period, whilst in the two last 6-year periods (1925—30 and 1931—36) there is a quite decided decrease to be noted in the monthly average catches.

Briefly the conditions may be summarized as follows. The monthly average catches (in cwts.) per 100 hours fishing in Icelandic Waters by British trawlers were on the decrease in the years 1904—13 before the world-war. Immediately after the war years (in the period 1919—24) the averages were considerably above the means for the whole period 1904—36, but in the two last 6-year periods, from 1925—30 and 1931—36, the average catches have on the whole been quite considerably below the total means.

For foreign trawlers (Aberdeen) we have, as mentioned, only records for the monthly average catches in the period 1924—36. Dividing this into two periods, 1924—29 and 1930—36, we obtain the average quantities noted in Table 18.

Table 18. Monthly average catches (in cwts.) per 100 hours fishing in Icelandic Waters, arranged in two periods within the whole period 1924—36.

Foreign Trawlers. Aberdeen.

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1924—29	6.4	2.9	2.1	1.5	2.2	3.3	2.9	3.9	4.6	6.2	6.6	6.7
1930—36	6.2	3.2	2.3	2.8	2.8	3.3	3.2	2.2	3.3	3.5	4.3	7.6
Mean 1924—36.....	6.3	3.1	2.2	2.2	2.5	3.3	3.0	3.3	4.5	5.0	5.5	7.2

Table 19. Monthly average catches (in cwts.) per 100 lines fishing in Icelandic Waters.

British Liners. Aberdeen.

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual Mean
1911	—	—	—	—	68.9	82.6	64.0	70.8	51.7	16.0	—	5.3	51.3 (7)
1912	—	—	—	40.2	64.6	65.8	66.4	64.0	75.8	39.5	8.6	3.5	47.6 (9)
1913	23.3	18.0	52.5	—	42.4	59.6	77.0	62.0	74.5	—	6.7	3.7	42.0 (10)
1914	22.5	—	—	—	24.9	60.8	60.8	39.2	47.4	13.5	4.0	7.8	31.2 (9)
1915	5.7	17.2	10.8	25.6	30.6	46.8	30.9	13.1	17.6	8.4	3.4	11.6	18.5
1916	5.7	7.4	4.4	3.1	6.4	10.7	13.4	10.7	1.9	3.4	1.2	6.9	6.3
1917	5.1	4.0	—	47.8	3.3	—	—	—	—	—	—	—	15.0 (4)
1918	—	—	—	—	—	—	—	—	—	—	—	—	-
1919	—	—	—	—	—	—	—	—	—	—	—	11.7	11.7 (1)
1920	—	—	—	—	—	—	163.8	97.1	115.9	0.2	9.9	—	77.4 (5)
1921	13.4	—	—	—	—	—	—	128.6	109.3	111.0	1.0	—	72.7 (5)
1922	—	12.0	—	—	45.9	—	101.8	11.0	94.8	81.9	—	10.5	51.1 (7)
1923	23.1	27.7	61.0	—	—	98.7	75.2	67.4	70.9	66.0	55.1	62.5	60.8 (10)
1924	—	32.3	22.0	75.9	102.0	50.2	73.0	54.2	62.3	49.8	—	2.0	52.4 (10)
1925	—	—	—	40.0	41.7	60.6	38.3	63.5	51.3	61.1	38.9	49.0	49.4 (9)
1926	14.1	—	—	54.6	—	34.9	88.6	44.9	51.4	47.2	—	—	48.0 (7)
1927	—	—	16.0	22.5	68.6	41.6	64.0	42.5	42.5	31.3	7.8	2.0	33.9 (10)
1928	—	18.3	15.3	94.1	44.2	40.4	—	42.4	45.7	—	10.4	1.1	34.7 (9)
1929	—	4.2	16.1	48.4	37.1	29.3	26.9	—	40.8	23.7	12.3	2.1	24.1 (10)
1930	2.8	1.1	12.5	11.6	49.2	43.2	30.8	30.4	31.8	16.6	7.4	7.0	20.4
1931	—	13.5	28.3	19.5	44.3	61.1	50.8	37.3	26.1	13.9	6.5	4.5	27.8 (11)
1932	—	9.1	—	21.5	41.8	41.0	27.9	44.4	33.7	21.1	13.5	15.4	26.9 (10)
1933	0.5	11.0	15.8	35.0	60.2	35.1	50.4	—	39.8	23.8	2.1	1.9	25.1 (11)
1934	12.7	3.1	—	77.0	26.3	45.7	37.2	34.2	30.0	28.3	25.1	—	32.0 (10)
1935	—	—	7.5	24.0	30.3	46.2	24.7	26.7	13.3	6.1	3.7	—	20.3 (9)
1936	—	—	75.0	14.6	40.9	46.0	69.4	60.2	62.1	35.7	29.5	0.8	43.4 (10)

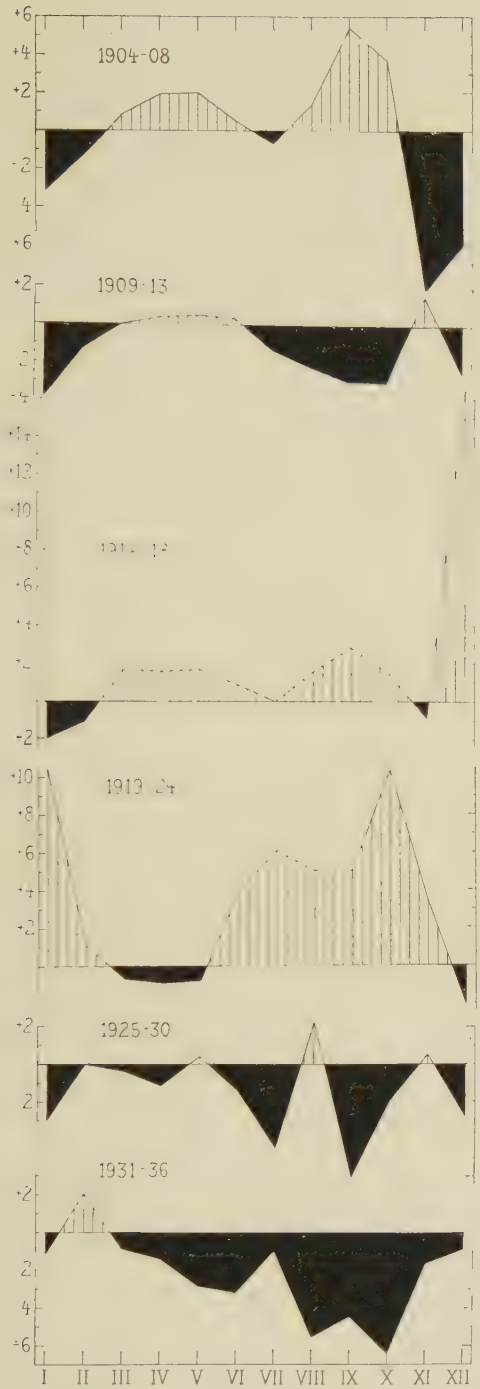

Fig. 14. Deviations from the monthly mean catches for the whole period 1904—36 in the periods 1904—08, 1909—13, 1914—18, 1919—24, 1925—30 and 1931—36. British Trawlers. Aberdeen. Icelandic Waters.

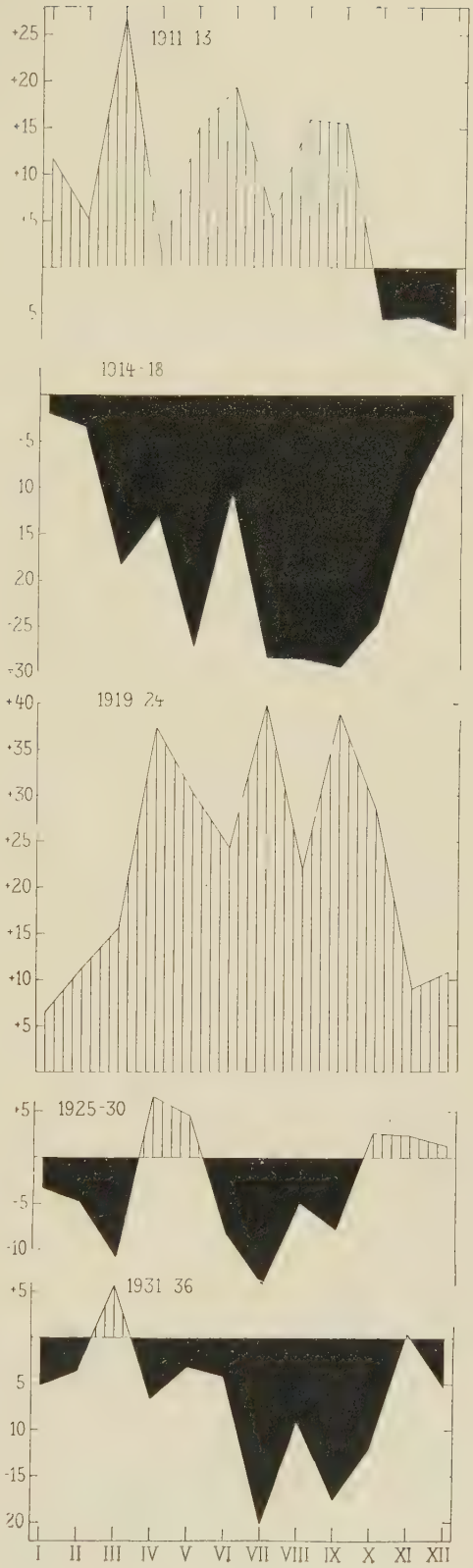

Fig. 15. Deviations from the monthly means for the whole period 1911—36, in the periods 1911—13, 1914—18, 1919—24, 1925—30 and 1931—36. British Liners. Aberdeen. Icelandic Waters.

The monthly average catches for foreign trawlers are on the whole considerably less than for the British trawlers, and the deviations in the two periods 1924–29 and 1930–36 from the means for the whole material are not essentially different, as can be seen directly from the Table 18. It is further worthy of note, that the same feature holds good for the foreign trawlers as for the British trawlers, namely, that the smallest monthly averages occur in the spring, especially in the months of March, April and May.

B. Line fishery at Iceland (Scotland). Regarding this fishery we have from Scotland information regarding the catch (in cwts.) per 100 lines fishing in the different months of the year since 1911, as will appear from Table 19 (p. 24).

In the case of the line fishery we may arrange the monthly average catches in 5 periods, namely pre-war years 1911–13, war years 1914–18, and post-war years in the 6-year periods 1919–24, 1925–30 and 1931–36. The calculated averages for the respective 5 periods are given in Table 20, which also shows the monthly average catches for the whole period 1911–36.

Table 20. Monthly average catches (in cwts.) per 100 lines fishing in Icelandic Waters, arranged in 5 periods within the total period 1911–36.
British Liners. Aberdeen.

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1911—13	23.3	18.0	52.5	40.2	58.6	69.3	69.1	65.6	67.3	27.7	7.6	4.2
1914—18	9.7	9.5	7.6	25.5	16.3	39.4	35.0	21.0	22.3	8.4	2.9	8.8
1919—24	18.2	24.0	41.5	75.9	73.9	74.4	103.4	71.7	90.6	61.8	22.0	21.7
1925—30	8.4	7.9	15.0	45.2	48.2	41.7	49.7	44.7	43.9	36.0	15.4	12.2
1931—36	6.6	9.2	31.6	31.9	40.6	45.8	43.4	40.6	34.2	21.5	13.4	5.6
Mean 1911—36.....	11.7	12.8	25.9	38.6	43.7	50.0	63.6	49.7	51.8	33.3	13.0	11.0

Taking the monthly averages for the whole period 1911–36 as general means, we may calculate the positive or negative deviations therefrom of the separate records and thus obtain the curves shown in Fig. 15 (p. 25).

In the pre-war years 1911–13 the monthly average catches were on the whole considerably above the mean, whilst in the war years they were lower in all months of the year, due without doubt to the extraordinary conditions prevailing during the war. In the first years after the war the average catches in all months are quite considerably greater than the means for the whole period 1911–36, but especially in the season from April to October. In the period 1925–30 the catches are on the whole below the mean values and still more so in the last period from 1931 to 1936.

Thus, both for trawlers and liners in the Icelandic fishery there is a very decided decline in the catches from the years 1919–24 on to the years 1931–36. Calculating the average catches for the year in these two periods we obtain the following means (in cwts.):

	1919—24	1931—36
Per 100 hours trawling	10.8	5.5
Per 100 lines fishing.....	54.3	29.2

III. The Waters round Greenland.

Concerning the yield of the Halibut fishery in the waters round Greenland we find detailed information about the share of the different countries in the fishery in the "Bulletin Statistique", but only from and including the year 1928. No distinction is made in these statistics between West Greenland (Area XV) and East Greenland (Area XIV), the two areas being taken together. Further, for recent years 1934 and 1935 they include the catch in Newfoundland waters (Area XX), taken by certain vessels which have fished in both regions, and this brings some confusion into the statistics concerning the fishery at Greenland in these years. The yield for the years 1928—35 are given below from the "Bulletin Statistique".

Table 21. Quantities in '000 kgs. of Halibut taken in Greenland Waters (incl. Newfoundland 1934—35) by different countries, also the totals for the years 1928—35.

	England	Faroe Islands	Germany	Norway	Scotland	Total
1928	2,514	..	..	2,315	71	4,900
1929.	5,079	..	157	850	625	6,711
1930	4,219	..	42	..	477	4,738
1931	4,811	..	..	41	431	5,283
1932	3,090	..	..	111	396	3,597
1933...	2,809	..	..	521	172	3,502
1934	3,631	..	..	455	105	4,191
1935	2,686[1])	c. 100	..	343	50	3,179

[1]) Greenland: 2683 th. kg. — Gulf of St. Lawrence and New Foundland: 3 th. kg.

As this Table shows, the English fishery carried on by steam liners contributes by far the most important part of the yield in the different years. For the English fishery a very marked decrease in the yield can be noted in the later years by comparison with 1929—31. For Norway we have in one year (1928) a very large yield, namely 2,315,000 kgs., but the remaining years show far smaller quantities, though in the last 3 years Norway has been the country which has taken the second-largest catches after England. On the other hand, Scotland occupied second place in the years 1930—32. With regard to the total catch, this was greatest in the year 1929 decreasing decidedly in the later years; in 1935 the total catch only amounted to about half the total in 1929.

We may now examine a little more closely the English and Scottish fisheries here, as the official statistics of these countries give more detailed information.

1. England.

The data for the Halibut fishery at Greenland begin with the year 1928; for 1928—32 the statistics deal only with the whole fishery at Greenland, but for the years 1933—36 a distinction is made between the fisheries at East and West Greenland.

As mentioned above, there is a decided decrease to be noted in the yield of the English Halibut fishery at Greenland in the latest years by comparison with the years 1929—31 and the records for the years 1933—36 in Table 22 indicate that this decrease is mainly due to a smaller fishery at West Greenland.

The English Halibut fishery at Greenland is carried on in by far the most part by liners, but in the last 2 years, according to the English statistics, a small quantity of Halibut has been taken with the trawl in the waters of West Greenland. These quantities amounted in 1935 to 325 cwts. and in 1936 to 177 cwts., thus but a small part of the total.

For the line fishery the English statistics give information regarding the average catch (in tenths of a cwt.) per day's absence from port, for the years 1927–36. The details are shown in Table 23, the last column showing the average catches for East and West Greenland combined

Table 22. England.
Halibut fishery at Greenland,
1928—36.

	E. Greenland	W. Greenland	Total
	cwts.	cwts.	cwts.
1928	—	..	49,497
1929	..	..	99,990
1930	..	..	83,044
1931	..	..	94,703
1932	..	..	60,833
1933	3,005	52,294	55,299
1934	5,264	66,204	71,468
1935	7,115	45,699	52,814
1936	4,860	28,795	33,655

Table 23. England — Steam Liners.
Average catch per day's absence from port
(tenths of a cwt.).

	E. Greenland	W. Greenland	Total and average
1927	..	..	122
1928	..	..	147
1929	..	..	131
1930	..	..	95
1931	..	..	77
1932	43	64	53
1933	81	49	65
1934	63	74	68
1935	75	68	71
1936	69	85	77

for the years 1932—36. Considering the figures in this last column it will be seen, that there is a decided decrease in the average catch per day's absence from port in the later years by comparison with the earlier, the years 1927—29 especially. The mean values for the 5 years 1927—31 were ca. 11.4 cwts. and for 1932—36 ca. 5.8 cwts.; thus, the average catch of liners in Greenland Waters per day's absence from port was in the last 5 years only ca. 58 % of the catch in the 5 years 1927—31.

2. Scotland.

In the official statistics from Scotland no distinction is made between catches from West and East Greenland. The annual returns for the period 1928—36 are shown in Table 24.

Table 24. Scotland. Halibut fishery at Greenland 1928—36.

1928	1929	1930	1931	1932	1933	1934	1935	1936
cwts.	cwts.	cwts.	cwts.	cwts.	cwts.	cwts.	cwts.	cwts.
1,406	12,310	9,382	8,486	7,791	3,381	2,069	994	3,114

In the year 1929 there is a decided maximum in the Scottish Halibut fishery in Greenland Waters, namely ca. 12,300 cwts. In the years 1930—32 the quantities fall somewhat evenly to ca. 7,800 cwts., then in 1933 to ca. 3,300 cwts. and in 1934 to ca. 2,000 cwts.; in 1935 they are down to only 994 cwts. In the year 1936, however, there is a sudden rise in the catch to 3,114 cwts., which is certainly due, as will be noted later, to the fact that the fishery was carried on more intensively than in 1935.

The Scottish fishery in Greenland Waters is carried on exclusively by steam liners and is mainly restricted to the summer half-year, namely from May to October. From the Fishery Board for Scotland detailed information regarding the fishery at Greenland has been received, with regard both to the intensity (amount) and the average catch. The number of lines used in the different months of the years 1928—36 is shown in Table 25.

Table 25. No. of Lines. Halibut Fishery at Greenland.
Scotland (Aberdeen).

	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1928	..	..	..	..	589	440	..	..	..	1,029
1929	414	1,151	2,069	1,723	2,644	899	678	..	..	9,578
1930	380	848	1,262	2,977	2,747	2,722	250	260	..	11,446
1931	216	1,135	1,868	2,290	1,771	870	585	..	150	8,885
1932	167	627	749	1,706	2,370	508	580	..	254	6,961
1933	..	320	562	602	929	476	445	..	..	3,334
1934	..	365	770	644	..	300	1,004	861	..	3,944
1935	..	..	410	..	260	230	..	..	..	900
1936	..	..	257	819	1,667	1,763	928	606	..	6,040

Naturally enough there is a marked correlation between number of lines used in the different years and the catch obtained. It appears clearly, for example, that the fishery in 1935 was carried on much less intensively than in the years 1934 and 1936, which explains the small total catch in 1935. There is also information, however, regarding the calculated average catch (in cwts.) per 100 lines fishing, and it is of great interest to consider this material, given in Table 26.

Table 26. Monthly average catches (in cwts.) per 100 lines fishing in Greenland Waters.
British Liners. Aberdeen.

	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1928	..	..	..	..	160.6	104.5	..	..	..
1929	215.7	136.1	125.7	141.3	110.5	166.8	58.0	..	..
1930	144.5	122.6	142.2	142.1	88.0	67.3	237.2	118.8	..
1931	167.1	96.5	94.4	92.3	88.4	88.7	118.5	..	85.3
1932	107.8	99.7	242.6	124.3	88.8	65.7	65.0	..	91.3
1933	..	25.3	194.0	91.5	82.9	111.8	80.2	..	..
1934	..	109.6	114.3	70.8	..	63.7	13.5	0.7	..
1935	..	..	126.8	..	92.9	117.8	..	..	..
1936	..	..	105.1	104.4	49.8	44.0	39.6	2.6	..

Since the returns are for somewhat different months in the various years, it will be most correct to make a comparison only between the months when the fishery was mainly carried on. This gives us the period from May to October (inclusive) and a comparison may be made between the monthly average catches for respectively 1929—32 and 1933—36, omitting 1928 which shows data for only a couple of months. The calculated monthly average catches for the two periods are shown in Table 27, which also gives the average figures for the whole period 1929—36.

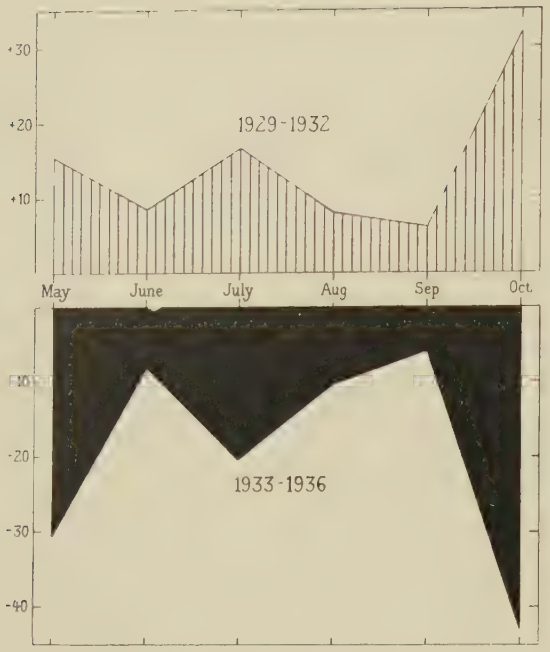

Fig. 16. Deviations in the monthly average catches of the periods 1929—32 and 1933—36 from the average catches for the whole period 1929—36. British Liners (Aberdeen) in Greenland Waters.

As will be seen at once from a study of Table 27, all the monthly averages for the period 1929—32 exceed those for the period 1933—36; often too there is a very considerable deviation from the mean for the whole period 1929—36, as will be seen from the graphic representation in Fig. 16.

Calculating the mean values from Table 27 for the periods 1929—32 and 1933—36 we see, that in 1929—32 the average catch was 116.7 cwts., whilst in 1933—36 the catch was only 82.5 cwts. per 100 lines fishing. Thus, in the 4 years 1933—36 the line fishery at Greenland has on an average only yielded ca. 70 % of the catch in the 4 previous years 1929—32.

The information regarding the relative yield both for Scottish and English line fisheries in Greenland Waters thus shows, that the cause of the smaller yield in the later years comes in fact from a considerably less remunerative fishery than in the earlier years.

Table 27. Monthly average catches (in cwts.) per 100 lines fishing in Greenland Waters in the years 1929—32 and 1933—36, and for the whole period 1929—36.
British Liners. Aberdeen.

	May	June	July	Aug.	Sept.	Oct.
1929—32	113.7	151.2	125.0	93.9	97.1	119.5
1933—36	67.4	135.0	88.9	75.2	84.3	44.4
Mean 1929—36...	98.3	143.1	109.5	85.9	90.7	87.4

IV. Comparison between the relative quantities of Halibut taken in the Waters round the Faroes, Iceland & Greenland.

For the purpose of studying the relative catches in the different regions we may use the detailed returns given in the English and Scottish fisheries statistics, for both trawl and line Halibut fishery.

Trawl fishery at the Faroes and Iceland. In this investigation we may consider first the average catch (in tenths of a cwt.) per day's absence from port in the two areas, as given in the English fisheries statistics and shown here graphically for the years 1919—36 in Fig. 17. We consider only the post-war years, since the conditions during the war were certainly extraordinary, and because the fluctuations in the yield of the fisheries in the later years are of special interest.

It appears from Fig. 17, that the average catch per day's absence in the years 1919—36 is considerably higher on the whole for Iceland than for the Faroes. For Iceland there is an average catch from 0.6 to 0.8 cwt. in the years 1919—29, whilst it since 1930 has fluctuated between 0.5 and 0.6 cwt. per day's absence from port. At the Faroes there is a distinct fall in the years 1922—26 from 0.7 to 0.2 cwt., then the catch mounts steadily until recent years, when it has varied between 0.4 and 0.5 cwt.

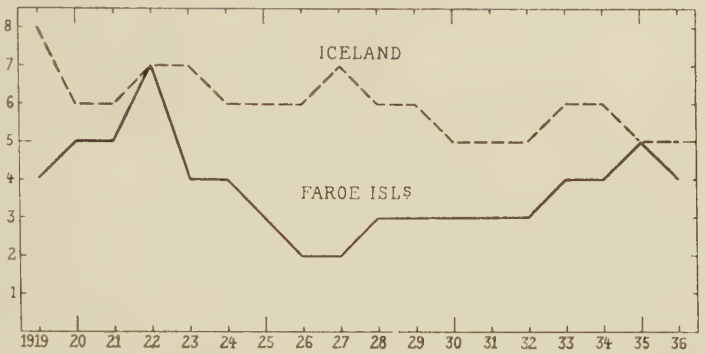

Fig. 17. English trawl fishery at the Faroes and Iceland. Average catch (tenths of a cwt.) per day's absence from port.

The calculation of the average catch (in cwts.) per 100 hours fishing displays a corresponding course for the English trawl fishery at the Faroes and Iceland, as the curves of Fig. 18 indicate. This figure also gives corresponding curves for the Scottish trawl fishery in the two different areas.

Whilst the English trawl fishery has yielded a considerably larger average catch at Iceland than at the Faroes in all the years from 1922 to 1936, for the Scottish trawl fishery this only holds good for some of the years before 1928. The average catch for the Scottish trawl fishery has in the later years been almost the same at the Faroes as at Iceland, fluctuating between ca. 4 and 6 cwts. per 100 hours fishing. The extensive fluctuations in the average catch of the Scottish trawl fishery at Iceland in the years 1919—25 seem peculiar by comparison with the English fishery, but in the main a distinct decrease can be noticed for both countries in the average catch in Icelandic waters in the course of the last 10—12 years. At the Faroes, on the other hand, we find an increase, though slight, in the catch during the years since 1930.

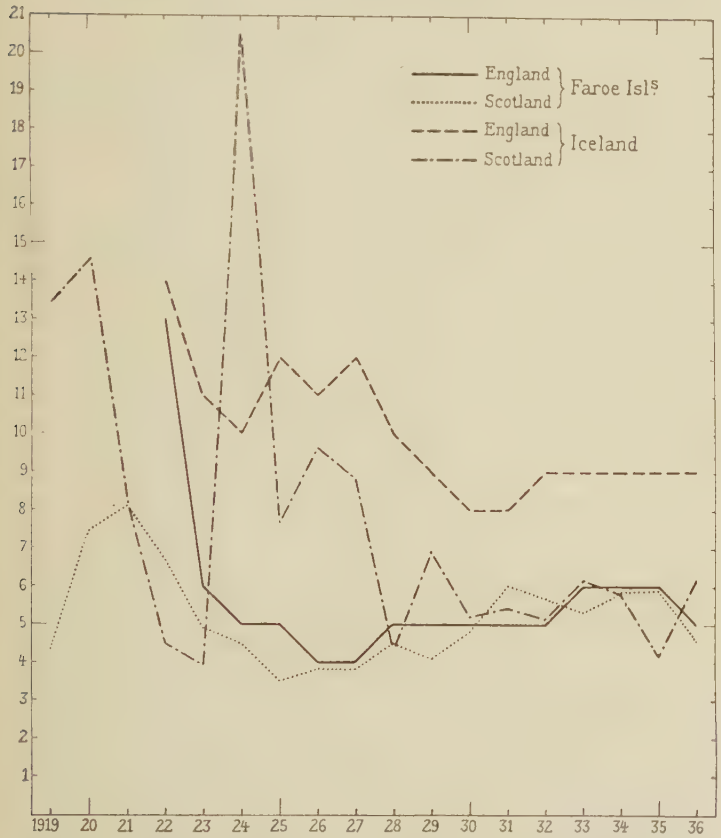

Fig. 18. English and Scottish trawl fishery at the Faroes and Iceland. Average catch (in cwts.) per 100 hours fishing.

Line fishery at the Faroes, Iceland and Greenland. For the line fishery in the three regions we have in the English statistics details of the average catch (in tenths of a

Fig. 19. English line fishery at the Faroes, Iceland and Greenland. Average catch (in tenths of a cwt.) per day's absence from port.

cwt.) per day's absence from port, whilst the Scottish statistics give information regarding the average catch (in cwts.) per 100 lines fishing. The returns apply to the years 1919—36 and 1920—36 respectively. As the material for 1919 in the Scottish statistics is but meagre, it has been omitted in this connection.

In the Figures 19 and 20 the annual average catches in the waters round the Faroes, Iceland and Greenland are shown for both the English and Scottish line fisheries. But it should be noted, in the case of the Greenland material, that the average catch is only taken here for the months of April—October (inclusive), as we have only scattered data for the other months of the year.

There is on the whole fairly good agreement between the respective curves in the two figures. The line fishery at Iceland has generally yielded a somewhat larger average catch than the line fishery at the Faroes, especially for the Scottish fishery, and the line fishery at Greenland in all the years from and with 1927—28 has yielded an average catch several times larger than those from the waters round the Faroes and Iceland. A general feature noticeable for all three regions is, that a quite decided decrease appears in the average catch in recent years. For the Faroes and Iceland the average catch has been on the downward grade from about 1920 to 1930, after which it has remained more or less constant; for the Greenland Waters the average catch for the last 4—5 years has been considerably less than in the first years, when a more intensive Halibut fishery was carried on in these waters.

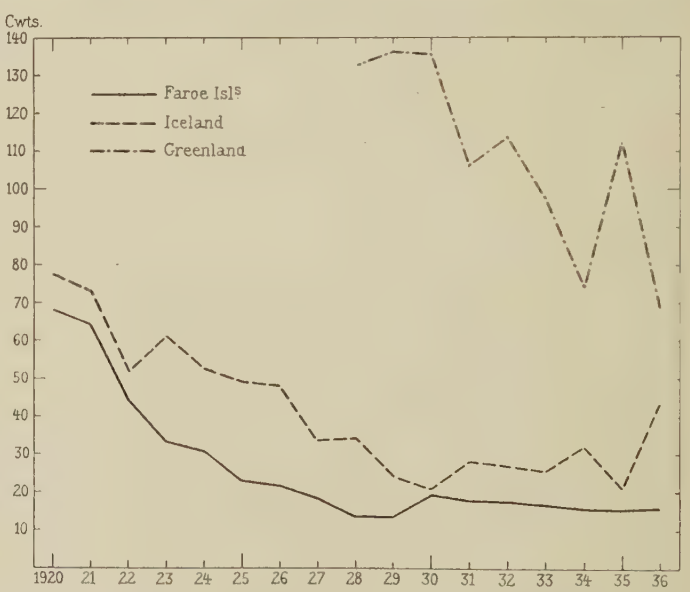

Fig. 20. Scottish line fishery at the Faroes, Iceland and Greenland. Average catch (in cwts.) per 100 lines fishing.

Dansk Resumé.

Statistisk Oversigt over Helleflynderfiskeriet i Farvandene omkring Færøerne, Island og Grønland.

Paa Grundlag af den foreliggende Statistik gives en Oversigt over Udbyttet af Helleflynderfiskeriet ved Færøerne, Island og Grønland i de Aar, hvorfra der forefindes statistiske Oplysninger. For Færøernes og Islands Vedkommende er i Almindelighed benyttet det statistiske Materiale fra og med Aaret 1906, medens det for Fiskeriet i Farvandene omkring Grønland kun findes en nogenlunde udførlig Statistik fra og med Aaret 1928.

Helleflynderfiskeriet i de tre nævnte Omraader udgør en meget betydelig Del af det samlede Helleflynderfiskeri i nordatlantiske Have. Efter "Bulletin Statistique" har det saaledes i Aarene 1932—35 udgjort mellem 49.7 % og 60.9 % af det samlede Fangstudbytte. I de nævnte Aar har Udbyttet ved Færøerne beløbet sig til mellem 7.8 og 11.5 %, ved Island til mellem 18.8 og 22.1 % og ved Grønland til mellem 22.9 og 30.3 % af Totalfangsten i nordatlantiske Have. Da Totalværdien af Helleflynderfiskeriet i de nævnte Aar har varieret mellem ca. 14,600,000 og c. 15,800,000 shillings, kan Værdien af Fiskeriet ved Færøerne, Island og Grønland i disse Aar formentlig skønsmæssigt sættes til omtrent Halvdelen af dette Beløb.

I. Farvandene omkring Færøerne.

Totaludbyttet af Helleflynderfiskeriet i færøske Farvande i Aarene 1906—35 er gengivet grafisk i Fig. 2, og Tabel 1 viser de forskellige Nationers Andel i dette. Adskillige Nationer deltager eller har deltaget i Helleflynderfiskeriet i Farvandene omkring Færøerne, men det er dog i langt overvejende Grad England og Skotland, der hjemfører de største Fangster fra dette Omraade (Fig. 3).

1. England. I den officielle engelske Statistik foreligger mere specificerede Oplysninger vedrørende Udbyttet af Helleflynderfiskeriet i Farvandene omkring Færøerne fra Aarene 1906—14 og 1919—36. De aarlige Fangster, angivet i cwt., henholdsvis for Travlfiskeri og Linefiskeri, er opført i Tabel 2. For Travlfiskeriet er der, som det fremgaar af Fig. 4, i de første Aar efter Krigen en Stigning i Udbyttet med en Kulmination i Aaret 1924, men allerede i 1925 og 1926 et ret stærkt Fald. Derefter følger en nogenlunde jævn Stigning indtil 1935. Ganske anderledes forløber Kurven for Linefiskeriets Vedkommende i Tidsrummet 1919—36. I de første Efterkrigsaar er der en stærk Stigning til 1921, der betegner et udpræget Maximaludbytte for hele Efterkrigstiden. I Aarene 1922 og 1923 falder Fangstmængden stærkt, og i Tiden siden 1928—30 har det aarlige Udbytte været meget ringe. Medens den aarlige Fangst for Aarene 1920—22 var c. 16,500 cwts., har den i Aarene siden 1930 kun udgjort c. 490 cwts.

Da der for det engelske Travlfiskeri ved Færøerne findes Opgørelser over Gennemsnitsfangsten pr. Dag og over Gennemsnitsfangsten pr. 100 Timers Fiskeri, er disse Angivelser gjort til Genstand for en nærmere Betragtning. I Tabel 3 er den aarlige Gennemsnitsfangst pr. Dag opført i $^1/_{10}$ cwt. og den aarlige Gennemsnitsfangst pr. 100 Timers Fiskeri i cwt. Som det fremgaar af Tabellen, er Gangen i de aarlige Svingninger i Hovedsagen ganske overensstemmende efter de anvendte to Beregningsmaader, og begge tyder paa en ret udtalt Nedgang i Gennemsnitsfangsten siden de første Aar efter Krigen 1914—18.

Vedrørende det engelske Linefiskeri ved Færøerne forefindes i den engelske Fiskeristatistik en Opgørelse over Gennemsnitsfangsten pr. Dag. Disse Fangster, der er opgjort i $^1/_{10}$ cwt., ses af Tabel 4. I Aarene før Krigen var der en tydelig Nedgang i Gennemsnitsfangsten pr. Dag.

Umiddelbart efter Krigen ligger Gennemsnitsfangsten imidlertid langt højere end i de bedste Aar før Krigen, men derefter er der en nogenlunde jævn Nedgang indtil de sidste Aar. I Aarene 1934—36 har den daglige Gennemsnitsfangst for Linedampere i færøske Farvande saaledes kun udgjort c. 17—18 % af Gennemsnitsfangsten i Aarene 1919—21.

2. Skotland. I Fig. 5 er givet en grafisk Fremstilling af Udbyttet af det skotske Helleflynderfiskeri for henholdsvis Travlere og Linedampere i Aarene 1922—36.

For det skotske Travlfiskeri i færøske Farvande foreligger maanedlige Opgørelser af Gennemsnitsfangsten pr. 100 Timers Fiskeri fra 1903 til 1936 (Tabel 6). For bedre at faa en Oversigt over Svingningerne i Fiskeriet i den lange Aarrække er Materialet inddelt i 6 forskellige Perioder. De maanedlige Gennemsnitsfangster for hver af disse samt Middeltallene for hele Tidsrummet 1903—36 er opført i Tabel 7. Ved inden for hver Periode at beregne de positive og negative Afvigelser fra Gennemsnitsfangsterne for hele Tidsrummet 1903—36 faar vi de i Fig. 6 afsatte Kurver. Gennemsnitsfangsterne i Perioden 1903—08 var i alle Aarets Maaneder langt større end Middelfangsterne for nogen af de følgende Perioder. I Perioden 1909—13 var der en tydelig Nedgang i Udbyttet, og i Krigsaarene 1914—18 laa de maanedlige Gennemsnitsfangster overalt langt under Middeludbyttet. I Perioden 1919—24 var Udbyttet noget bedre; men det naaede kun i en enkelt Maaned (Juni) over Middeludbyttet, og i Perioden 1925—30 var den gennemsnitlige Fangst i alle Aarets Maaneder ganske betydeligt under Middel. Endelig viser Perioden 1931—36 sig igen en Del gunstigere end Perioden 1925—30.

Angaaende det skotske Linefiskeri i færøske Farvande foreligger maanedlige Opgivelser af Gennemsnitsfangsten (i cwt.) pr. 100 Liner for en længere Aarrække (Tabel 8). For Oversigtens Skyld inddeles Materialet i 6 forskellige Perioder, hvoraf de to falder i Tiden før 1916 og fire inden for Tidsrummet 1920—36. De beregnede maanedlige Gennemsnitsfangster i hver af de nævnte 6 Perioder samt for hele Tidsrummet 1908—15 og 1920—36 er opført i Tabel 9, og idet vi betragter de maanedlige Gennemsnitsfangster for de to Tidsrum som Middel og beregner de positive og negative Afvigelser fra disse Middeltal, faar vi de i Fig. 7 afsatte Kurver. En Betragtning af Figuren viser, at de maanedlige Gennemsnitsfangster i den første Periode, 1908—11, laa ganske betydeligt over Middeltallene for hele Materialet. I Perioden lige efter Verdenskrigen, 1920—22, opnaaedes et langt større Udbytte pr. 100 Liner end i nogen af de andre Perioder baade før Krigen og i Tiden efter 1922. Det fremgaar tydeligt, at der for Linefiskeriet i færøske Farvande har været en særdeles udpræget og stadig Nedgang i Udbyttet fra Aarene 1920—22 og til de sidste Aar. Til yderligere Illustration af dette Forhold er i Fig. 8 afsat de aarlige Gennemsnitsfangster for Aarene 1920—36, beregnet efter de maanedlige Opgivelser i Tabel 8, og det fremgaar heraf, at Fangsten (pr. 100 Liner) for det skotske Linefiskeri i Farvandene omkring Færøerne i de sidste Aar kun har udgjort c. 23 % af Udbyttet i 1920—21. En noget tilsvarende Nedgang har, som ovenfor nævnt, fundet Sted for det engelske Linefiskeris Vedkommende.

II. Islandske Farvande.

Det samlede Udbytte af Helleflynderfiskeriet i islandske Farvande i Aarene 1906—35 ses af Tabel 10, og i Fig. 9 er det aarlige Udbytte afsat grafisk. Det fremgaar bl. a. af disse Fremstillinger, at Totalfangsten af Helleflynder i Farvandene omkring Island i Tidsrummet 1929—35 kun har udgjort omtrent Halvdelen af Udbyttet i Aarene 1922—27. Som det ses af Fig. 10, der viser den aarlige Totalfangst samt Fangsten fra engelsk Side, er England den Nation, der fisker langt den største Mængde Helleflynder i islandske Farvande. Aarsagen til at Totaludbyttet i Aarene 1929—35 er reduceret til omtrent Halvdelen af Udbyttet i Tidsrummet

1922—27 skyldes da ogsaa i overvejende Grad, at det engelske Fiskeri i de senere Aar har givet et tilsvarende relativt ringe Udbytte.

1. England. Udbyttet af det engelske Helleflynderfiskeri i islandske Farvande, henholdsvis for Travlere og Linedampere, i Aarene 1906—14 og 1919—36 er opført i Tabel 11 samt fremstillet grafisk i Fig. 12. Medens Travlfiskeriet i det store og hele ikke har været underkastet større Svingninger med Hensyn til Udbyttet, er Forholdet et ganske andet for Linefiskeriets Vedkommende. I Aarene 1907—08 var der et tydeligt Maximum i Linefiskeriets Udbytte, men i Aarene indtil 1914 falder dette stærkt. I Efterkrigsaarene 1919—23 er der en stadig Stigning i Fangstudbyttet, og det kulminerer i Aarene 1923—25. Derefter er der et hurtigt Fald i Udbyttet til Aaret 1929, og siden da har det engelske Linefiskeri ved Island givet en relativ ringe Fangst. Ved en Sammenligning med det engelske Linefiskeris Udbytte ved Færøerne (Fig. 4) vil man bemærke, at der i disse Farvande er en ganske tilsvarende Nedgang i Fangsten som i Farvandene omkring Island.

For det engelske Travlfiskeri ved Island er Gennemsnitsfangsten pr. Dag samt pr. 100 Timers Fiskeri i de forskellige Aar opført i Tabel 12. Medens den gennemsnitlige Fangst pr. Dag kun viser en ringe Nedgang i Udbyttet for de senere Aar, er Gennemsnitsfangsten pr. 100 Timers Fiskeri derimod faldet fra 14 cwts. i 1922 til 8—9 cwts. i Aarene 1929—36.

Statistiken for det engelske Linefiskeri ved Island viser, at den gennemsnitlige Fangst pr. Dag i Løbet af de sidste 12—15 Aar er reduceret til c. 30 % af Udbyttet i Aarene omkring 1922 (Tabel 13).

2. Skotland. Som det fremgaar af Fig. 13 er Totalfangsten fra Travlere stærkt faldende fra Perioden 1923—26 og til de sidste Aar. Ved Linefiskeriet er der, som det ses af Figuren, betydelige Svingninger i det aarlige Udbytte, men for dette har Udbyttet i de sidste 5 Aar ligget omkring kun $^1/_3$ af Udbyttet i Aarene 1923—24.

Vedrørende det skotske Travlfiskeri ved Island findes maanedlige Opgørelser for Gennemsnitsfangsten pr. 100 Timers Fiskeri (Tabel 15—16). Hvis man for britiske Travlere, landet i Aberdeen, beregner den maanedlige Middelfangst pr. 100 Timers Fiskeri for 6 Perioder inden for Tidsrummet 1904—36, faar man de i Tabel 17 opførte Gennemsnitstal. Idet vi benytter de maanedlige Middelfangster for hele Tidsrummet som Gennemsnit og beregner de positive og negative Afvigelser for de forskellige Perioder ud fra disse Middelfangster, faar vi Kurver som afsat i Fig. 14. De maanedlige Gennemsnitsfangster var nedadgaaende i Aarene før Verdenskrigen. Umiddelbart efter Krigsaarene (i Perioden 1919—24) laa Gennemsnitsfangsterne betydeligt over Middelfangsterne for hele Tidsrummet 1904—36, men i de to sidste 6 Aarsperioder (1925—30 og 1931—36) har Gennemsnitsudbyttet gennemgaaende ligget ganske betydeligt under de samlede Middelfangster.

For det skotske Linefiskeri ved Island foreligger maanedlige Beregninger af Fangsten (i cwt.) pr. 100 Liner siden 1911 (Tabel 19); vi sammenfatter disse i 5 Perioder og beregner Middelfangsterne som vist i Tabel 20. Med de maanedlige Gennemsnitsfangster for hele Tiden 1911—36 som Middel er beregnet de positive og negative Afvigelser for de respektive Perioder (Fig. 15). I de første Efterkrigsaar var Gennemsnitsfangsterne i alle Aarets Maaneder ganske betydeligt større end Middelfangsterne for hele Tidsrummet 1911—36, men dog især i Tiden fra April til Oktober. I Perioden 1925—30 var Fangsterne gennemgaaende under Middel og i endnu højere Grad i den sidste Periode fra 1931 til 1936.

Saavel for Travlfiskeriet som Linefiskeriet ved Island er der saaledes en særdeles tydelig Nedgang at paavise i Fangstudbyttet fra Aarene 1919—24 og til Aarene 1931—36.

III. Farvandene omkring Grønland.

Angaaende Helleflynderfiskeriet i Farvandene omkring Grønland foreligger kun Oplysninger fra og med Aaret 1928. Det samlede Fangstudbytte er for Aarene 1928—35 opført i Tabel 21, hvoraf ligeledes ses de forskellige Nationers Andel i Udbyttet. Totalfangsten var størst i Aaret 1929 med en ret stærkt nedadgaaende Tendens i de senere Aar; i 1935 udgjorde Totalfangsten saaledes kun omtrent Halvdelen af Fangsten i 1929.

1. England. Som det fremgaar af Tabel 21 er der en decideret Nedgang at spore i Totaludbyttet af det engelske Helleflynderfiskeri ved Grønland i de sidste Aar i Sammenligning med Aarene 1929—31; dette skyldes i overvejende Grad et ringere Fiskeri ved Vestgrønland (Tabel 22).

Den engelske Statistik giver Oplysninger om Linefiskeriets Gennemsnitsfangst pr. Dag i grønlandske Farvande. Som det ses af Tabel 23 er der en tydelig Nedgang i Gennemsnitsfangsten pr. Dag i de senere Aar i Sammenligning med Aarene 1927—29. Middeltallene for Femaaret 1927—31 er c. 11.4 cwts. og for Femaaret 1932—36 c. 5.8 cwts., og det fremgaar deraf, at den daglige Gennemsnitsfangst for Linedampere i grønlandske Farvande i de sidste 5 Aar kun har udgjort c. 58 % af Udbyttet i Femaaret 1927—31.

2. Skotland. I Aaret 1929 er der et udpræget Maximum i det skotske Helleflynderfiskeris Udbytte i grønlandske Farvande (Tabel 24), men det falder stærkt i de efterfølgende Aar til 1935. I Aaret 1936 er der en betydelig Stigning, hvad der sikkert skyldes, at der i dette Aar blev drevet et betydeligt mere intensivt Fiskeri fra skotsk Side end i 1935. Dette ses af Tabel 25, der viser Antallet af Liner i de forskellige Aar.

I den skotske Statistik forefindes Oplysninger om det beregnede Fangstudbytte (i cwts.) pr. 100 Liner, som fremstillet i Tabel 26. Da Linefiskeriet især finder Sted i Tiden fra Maj til Oktober incl. er i den sammenlignende Opstilling i Tabel 27 kun taget Hensyn til disse Maaneder. Som det ses af denne Tabel ligger alle de maanedlige Gennemsnitsfangster for Perioden 1929—32 over Gennemsnitsfangsterne for Perioden 1933—36. Dette fremgaar særdeles tydeligt af den grafiske Fremstilling i Fig. 16, der viser Afvigelserne fra Middelfangsten i Aarene 1929—36. Det skotske Linefiskeri har i de sidste 4 Aar (1933—36) gennemsnitlig pr. 100 Liner kun givet c. 70 % af Udbyttet i de forudgaaende Aar (1929—32).

Oplysningerne vedrørende det relative Fangstudbytte saavel for det engelske som det skotske Linefiskeri viser saaledes, at Aarsagen til det mindre Udbytte i de senere Aar i grønlandske Farvande faktisk skyldes, at der i disse har været et betydeligt daarligere Fiskeri end i tidligere Aar.

IV. Sammenligning mellem det relative Fangstudbytte i Farvandene omkring Færøerne, Island og Grønland.

Til Brug for en sammenlignende Undersøgelse over det relative Fangstudbytte i de forskellige Farvande i Aarene 1919—36 er benyttet Oplysninger fra den engelske og skotske Fiskeristatistik.

1. Travlfiskeri ved Færøerne og Island. I Fig. 17 er givet en grafisk Fremstilling af Gennemsnitsfangsten pr. Dag for det engelske Travlfiskeri i de to Omraader. Gennemsnitsfangsten ved Island ligger gennemgaaende betydeligt over Middelfangsten ved Færøerne. En anden Fremstillingsmaade er benyttet i Fig. 18, idet Gennemsnitsfangsten pr. 100 Timers Fiskeri er afsat henholdsvis for engelske og skotske Travlere i de to Omraader. Det fremgaar af de

forskellige Fremstillinger, at Udbyttet i de sidste 10—12 Aar har været nedadgaaende i Farvandene omkring Island, medens der ved Færøerne er en, omend svag, Stigning at spore i Gennemsnitsudbyttet i Aarene siden 1930.

2. Linefiskeri ved Færøerne, Island og Grønland. Ved en Undersøgelse af Linefiskeriets relative Udbytte er fra den engelske Statistik benyttet Opgivelser vedrørende Gennemsnitsfangsten pr. Dag og fra den skotske Statistik Angivelser af Fangsten pr. 100 Liner. Resultatet af de to Beregningsmetoder er afsat grafisk i Figurerne 19 og 20. I store Træk er der ret god Overensstemmelse mellem de respektive Kurver i de to Figurer. Som et almindeligt Træk for Linefiskeriets Udbytte i alle tre Omraader gælder det, at der er en ganske afgjort Nedgang at spore i Gennemsnitsfangsten for de senere Aar. For Færøerne og Island har Gennemsnitsfangsten været nedadgaaende i Tiden fra c. 1920 til 1930, hvorefter den har holdt sig nogenlunde konstant, hvorimod Gennemsnitsfangsten for Linefiskeri i grønlandske Farvande ligger betydeligt lavere i de sidste 4—5 Aar end i Aarene før 1931.

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